00063737

O
724.1
Moo/Cha
63737

THE

ASIATIC SOCIETY OF BOMBAY

Town Hall, Bombay.

Digitized with financial assistance from
Observer Research Foundation
on 17 May, 2019

CHARACTER OF RENAISSANCE ARCHITECTURE

The
Co

CHARACTER OF

RENAISSANCE ARCHITECTURE

BY

CHARLES HERBERT MOORE

AUTHOR OF "DEVELOPMENT AND CHARACTER OF GOTHIC ARCHITECTURE"

63737

ac.

LIBRAR
ROYAL ASIA

WITH TWELVE PLATES IN PHOTOGRAVURE AND ONE HUNDRED AND THIRTY-NINE ILLUSTRATIONS IN THE TEXT

Vx-C-4

New York
THE MACMILLAN COMPANY
LONDON: MACMILLAN & CO., LTD.
1905

All rights reserved

724.1
Moo/ Cha
63737

Copyright, 1905,
By THE MACMILLAN COMPANY.

Set up and electrotyped. Published October, 1905.

Norwood Press
J. S. Cushing & Co. — Berwick & Smith Co.
Norwood, Mass., U.S.A.

TO MY DAUGHTER

E. H. M.

PREFACE

In the following attempt to set forth the true character of the architecture of the Renaissance I have endeavoured to reduce mere descriptions of buildings to a minimum, and to give graphic illustrations enough to make the discussions clear. The illustrations in the text are mainly from my own drawings, for the most part from photographs: but in a few cases I have reproduced woodcuts from the works of old writers, indicating, in each case, the source from which the cut is derived. The photogravure plates are from photographs by Alinari, Moscioni, Naya, Wilson, and Valentine. The right to reproduce and publish them has been obtained by purchase.

With the best intentions and the greatest care, it is almost inevitable that a writer on such a subject should make some mistakes, and I cannot affirm that no inexact statements will be found in these pages, but I believe that no fundamental errors occur.

I am again indebted to my almost life-long friend, Professor Charles Eliot Norton, for valuable criticism, and painstaking revision; but Professor Norton is not responsible for anything that I have said. I am indebted, also, to my publishers for their courteous compliance with my wishes as to the style and manufacture of the book, and to Mrs. Grace Walden for the care and thoroughness with which she has prepared the index.

CAMBRIDGE, MASS.,
October, 1905.

CONTENTS

CHAPTER I

INTRODUCTION

PAGE

Character of the Fine Arts of the Renaissance not hitherto correctly set forth — The Fine Arts always an expression of the conditions and beliefs of a people — Mediæval Christianity as a source of artistic inspiration — Conditions that gave character to the Fine Arts of the Middle Ages — Artistic productions of the Renaissance qualified by the immoral tendencies of the time — Luxury and extravagance of Florence at the close of the fifteenth century — The Fine Arts made to minister to sensuous pleasure — Best classic art unknown in the Renaissance time — Mixed influences actuating the artist of the Renaissance — The Renaissance and the Middle Ages compared as to development of the individual — Lack of aptitude for construction among the architects of the Renaissance — The Italian genius for painting — The painter's habits of design shown in the Renaissance use of the orders — Classification of architectural styles — Painting the best art of the Renaissance — Yet Italian painting of the sixteenth century is not all of exemplary character — Best art of the Renaissance founded on the earlier Christian art — A retrospective movement not a vital force in artistic development 1

CHAPTER II

THE DOME OF FLORENCE

Exhibits a wide departure from older dome constructions — Sources of the architect's inspiration — General character of earlier domes — Remarkable construction of the dome of the Florentine Baptistery — It probably supplied the chief inspiration to both Arnolfo and Brunelleschi — Brunelleschi's departures from the Baptistery scheme — His structural system and his own account of it — No Gothic character possible in a dome — The dome of Florence a daring innovation — Its general dimensions — Brunelleschi's great ability as a constructor — His achievement of the work without the usual centring — Consideration of the dome as a work of art — The inherent weakness of its form — This not appreciated by the early Italian writers — Precautions taken for its stability — Signs of disintegration — Uncertainty as to its duration — Opinions of the early Italian writers as to its security — Structural integrity essential to good architecture — No classic character in Brunelleschi's dome — Inferior character of the classic details of the lantern 10

CHAPTER III

CHURCH ARCHITECTURE OF THE FLORENTINE RENAISSANCE

PAGE

The Pazzi chapel — Gothic character of its central vault — Architectural treatment of the interior — Impropriety of a classic order in such a building — Awkward result of an entablature passing through an arch impost — Incongruities of design and construction in the portico — Use of stucco — Sources from which the façade may have been derived — Other church architecture by Brunelleschi — San Lorenzo and Santo Spirito — Use of the entablature block in these churches — Survival of mediæval features and adjustments — Church architecture of Leon Batista Alberti — The façade of Santa Maria Novella — The façade of San Francesco of Rimini — The church of Sant' Andrea of Mantua — Return to Roman models in the structural forms of this building — Sant' Andrea foreshadows St. Peter's at Rome — Its west front an adaptation of the Roman triumphal arch scheme — Such fronts peculiar to Alberti — The designers of the Renaissance worked unconsciously on a foundation of mediæval ideas . . 26

CHAPTER IV

THE DOME OF ST. PETER'S

Bramante in Rome — His early training — Character of the Tempietto of San Pietro in Montorio — Its likeness to a Roman temple of Vesta — Bramante's project for St. Peter's — Uncertainty as to his scheme for the whole building — His design for the great dome — Sources of his inspiration — Comparison of his dome with that of the Pantheon — Structural merits and defects — The architect's probable intention to use a great order for the interior of the church — Michael Angelo's appointment as architect — His scheme for the great dome — Its statical defects — Its supposed Gothic character — Comparison with the dome of Salamanca — Its illogical buttress system — Its ruptures and the alarm which they occasioned — Commission appointed to examine the fabric and report on its condition — Poleni's opinion and his binding chains — The grandiose character of the dome — In following Brunelleschi, Michael Angelo went farther in a wrong direction — Such a scheme cannot be safely carried out without resort to extraneous means of support — The proper mode of constructing a dome settled by the ancient Roman and the Byzantine builders — Condition of the dome ignored by recent writers — The ruptures attributed by the early Italian writers to carelessness on the part of Bramante — The beauty of the dome exaggerated — Its violation of structural propriety incompatible with the highest architectural beauty 44

CHAPTER V

CHURCH ARCHITECTURE OF THE ROMAN RENAISSANCE

Other parts of the church of St. Peter — Beauty of its plan — This plan could not be carried out with a good result in classic Roman details — Awkward makeshifts to which Michael Angelo was led — The colossal order of the

PAGE

interior — The magnitude of the structural parts of the church unavoidable — The real character of the building contradicted by the external order — Makeshifts which this order necessitated — The real character of St. Peter's has been rarely analyzed — Its grandeur due to its magnitude and to what it derives from the design of Bramante — Its incongruity and extravagance — Use of stucco in the ornamentation of the interior — Extravagant laudation of the building by the earlier Italian writers — Antonio San Gallo's project for St. Peter's — Earlier examples of Roman Renaissance church architecture — Sant' Agostino a mediæval building with Renaissance details — Its façade — Santa Maria della Consolazione at Todi — Its attribution to Bramante — Irrational treatment of its interior — Merit of the exterior in its larger features — San Biagio at Montepulciano — The order of the interior — The Renaissance use of a pilaster coupled with a column on the corner of a building — Roman treatment of the corner — Instance of the use of a corner pilaster described by Serlio — The exterior of San Biagio — Its campanile and lantern — The evolution of this form of tower — System of Santissima Annunziatta at Arezzo — Vignola, and Milizia's remarks on him — His book of architecture — His advocacy of ancient Roman art and his disregard in practice of its principles — His design for Sant' Andrea di Ponte Molle — Its derivation from the Pantheon — Vignola's design for the church of Santa Maria degli Angeli at Assisi — His design for the Gesù at Rome — Aberrations of design in this work — The façade by Della Porta — Palladio, and his great influence on modern art — His book of architecture — His design for the church of San Giorgio Maggiore at Venice — The Redentore and San Francesco della Vigna . 66

CHAPTER VI

PALACE ARCHITECTURE OF THE FLORENTINE RENAISSANCE

The neo-classic ideas most extensively carried out in palatial houses — Domestic architecture of the Middle Ages in Italy — The Palazzo Riccardi — Its mediæval features — Its general form — Its court arcades — General character of the interior — Vasari's remarks on the Riccardi — The Palazzo Pitti — The Strozzino — The Strozzi — The Pazzi — The Quaratesi — The Guardagni and its reasonable character — The Rucellai — Introduction of orders in the façade of the Rucellai — The architect Alberti — His archæological and literary tastes — Alberti's initiative in the use of the orders not immediately followed — Further neo-classic innovations introduced by Baccio d' Agnolo — Milizia's remarks on these innovations — Increase in the spirit of display in domestic architecture — Decline of Florentine ascendency by the beginning of the sixteenth century — Artistic activities transferred to Rome — Erection of sumptuous palatial houses in Rome . 102

CHAPTER VII

PALACE ARCHITECTURE OF THE ROMAN RENAISSANCE

The Cancellaria — Its attribution to Bramante — Exhibits features in further conformity with the Roman antique — Its pilasters in pairs — Its projecting bays — Its portals — Arcades of its court — The Palazzo Massimi — The

PAGE

functional order of its portico — Treatment of the upper façade — The Palazzo Farnese — Application of orders and pediments to the windows — — The broken entablatures of these windows — An ancient example of similar treatment — Orders of the court — Awkward result in the angles — Rhythmical scheme of the cloister of Santa Maria della Pace — Lack of reason for this scheme — The architect Sansovino — His design for the Library of St. Mark at Venice — Treatment of the angles of the Doric order — Free-standing column in the order of the upper story — Sansovino's design for the Loggetta of the Campanile — His design for the Palazzo Cornaro — Sanmichele — His design for the Porta del Palio at Verona — His design for the Palazzo Canossa — The Palazzo Pompei alla Vittoria — The Palazzo Bevilacqua — Its singular aberrations of design — Vignola's design for the Palazzo Caprarola — Influence of its circular court on De l'Orme and Inigo Jones — The civic and domestic architecture of Palladio — The Portico of Vicenza — Its derivation from the town hall of Padua and from the Library of St. Mark — Syrian instance of the free-standing column in connection with the arch — Palladio's own estimate of the merits of this design — Use of poor materials by Palladio — His versatility in meaningless composition — His palace fronts — Palladio a grammatical formalist — The art of Scamozzi — His use of an entablature broken by an arch 112

CHAPTER VIII

CHURCH ARCHITECTURE OF THE RENAISSANCE IN NORTH ITALY

Various other phases of the architecture of the Renaissance — The façade of San Bernardino of Perugia — The façade of the Certosa of Pavia — Its combination of local mediæval and distorted neo-classic features — The church and sacristy of San Satiro — Evidence that both were designed by Bramante — Santa Maria delle Grazie — Its dome — Architectural treatment of its exterior — Its attribution to Bramante — The chapel of St. Peter Martyr attributed to Michelozzi — The Monastero Maggiore — The cathedral of Como — Evidence of Bramante's hand in the east end — Its details of mediæval Lombard character mixed with neo-classic elements — The south portal — The windows of the nave — Architecture of the Venetian Renaissance — The church of San Zaccaria — Peculiar column of its interior — The church of San Salvatore — Its piers — Attic of the interior — The church of Santa Maria dei Miracoli — Architectural treatment of its exterior — Excellence of its mechanical execution — The façade of Santa Maria Formosa 135

CHAPTER IX

PALACE ARCHITECTURE OF THE RENAISSANCE IN NORTH ITALY

Marked local character of the palace architecture of Venice — Façade of east side of court of the Ducal Palace — Irregularities of its composition — North side of the same court — The Giant's stair — Façade of the Scuola di San Marco — Composition of the main portal — Notable refinements of

PAGE

execution in this portal — Façade of the Scuola di San Rocco — Unique architectural character of the palaces of the Grand Canal — Those of the mediæval period alone have the distinctive Venetian character — Neo-classic details used sparingly in the early Renaissance palaces of Venice — The Palazzo Corner-Spinelli — Disposition and character of its windows — Questionable propriety of the panelling of its pilasters — The beauty of the façade independent of its neo-classic details — The Palazzo Contarini — The varied proportions of its pilasters — The Palazzo Vendramini — The distinctive Venetian character altered by the application of complete orders — This character largely lost in the palaces of the Roman Renaissance — The Palazzo del Consiglio of Verona — Its mediæval scheme — The Palazzo Comunale of Brescia — The Ospedale Maggiore of Milan — Its lack of distinctive character — The later palace architecture of north Italy 154

CHAPTER X

ARCHITECTURAL CARVING OF THE RENAISSANCE

Little architectural character in the sculpture of the Renaissance — Close imitation of Roman models — Great delicacy of design and execution in much carving of the Renaissance — Lack of vital beauty in this carving — Comparison with Greek conventional ornamentation — Exceptional beauty of foliation in the reliefs of the Lombardi — Lifeless character of the scroll leafage of Filarete — Artificial convolutions of Renaissance ornamental designs — Artificial and inorganic composition in the works of Benedetto da Maiano — Representation of artificial objects in Renaissance ornamentation — Disordered composition in the borders of the Ghiberti gates — Comparison of Greek leafage with that of the Renaissance — The grotesque in Renaissance ornamentation 167

CHAPTER XI

ARCHITECTURE OF THE EARLY RENAISSANCE IN FRANCE

The Renaissance had not the same meaning north of the Alps that it had in Italy — A fundamental change in French architecture effected by the Renaissance influence — Survival of the Gothic style — Conditions which favoured the change from Mediæval to Renaissance forms — The transformation of the feudal castle into the Renaissance château — Factitious character of the French Renaissance château — Peculiar mixture of pseudo-Gothic and neo-classic details in early French Renaissance architecture — The château of Azay le Rideau — Survival in this building of the larger mediæval forms — Its ornamental portal based on that of Châteaudun — Analysis of this portal — A different manifestation of Flamboyant ideas in the portal of Chenonceaux — The château of La Rochefoucauld — The eastern wing of Blois — The staircase tower of the court — The garden side of the eastern wing — The château of Chambord — Its florid upper part — Fontainebleau — Écouen — Bullant's portico — Exceptional char-

PAGE

acter of the château of St. Germain en Laye — Further transformation of French architecture in the later sixteenth century 179

CHAPTER XII

LESCOT AND DE L'ORME

French architecture further changed by Lescot and De l'Orme, yet still without elimination of native characteristics — Lescot's design for the Fountain of the Nymphs — The sculptures by Goujon — Possible derivation of the design from a drawing by Serlio — Lescot's design for the Louvre — Capricious treatment of neo-classic details in this design — The traditional logic of French design ignored by Lescot — Excessive ornamentation of the Louvre — The architectural work of De l'Orme — Paucity of extant examples — His design for the palace of the Tuileries — De l'Orme's column — His claim that this column was his own invention — Earlier instances of the same — A conscious effort to be original gave rise to most of the artistic aberrations of the Renaissance — Noble architecture not a personal, but a communal and national, product — Analysis of the façade of the Tuileries — De l'Orme's other architectural aberrations — The château of Charleval — The freakish character of this design — Discussion of Viollet le Duc's comments on it — The church architecture of the French Renaissance — The church of St. Eustache — Its unmodified Gothic structural system — Its neo-classic details — St. Étienne du Mont — SS. Gervais and Protais at Gisors — The apse of St. Pierre of Caen — The Portal of St. Maclou at Pontoise 194

CHAPTER XIII

ARCHITECTURE OF THE RENAISSANCE IN ENGLAND

I. *Elizabethan Art*

Derivation of the Elizabethan domestic architecture from the native mediæval art — The reasonable character of the early Elizabethan house in its integrity — The ostentatious character and pseudo-classicism of the great English houses of the sixteenth century — Use of flimsy materials in ornamental details — General excellence of construction in the main body of the building — Employment of foreign craftsmen in ornamentation — Kirby Hall — Its lack of native English character — Peculiar aberrations in the use of structural forms without structural functions — Fantastic ornamentation of the gables — Longford Castle — Its resemblance to Chambord — Manifold forms of capricious design in Lower Walterstone Hall, Cranborne Manor-House, Tixall, Stanway, and other buildings — Fantastic composition of the gate at Caius College, Cambridge — Aberrations of design in Wollaton Hall — Ungrammatical and tasteless misuse of distorted classic elements in Elizabethan architecture largely due to Flemish and Dutch workmen — No professional architects in Elizabethan times — The classic orders foreign to the genius and the needs of the English people . . 216

CHAPTER XIV

ARCHITECTURE OF THE RENAISSANCE IN ENGLAND

II. *Jones and Wren*

PAGE

The architecture of England in the seventeenth century properly called Renaissance only by extension of the term — Jones and Wren the only architects of importance at this time — Walpole's extravagant estimate of Inigo Jones — The early career of Jones — His design for the Banqueting Hall of the palace of Whitehall — Its lack of English character — Analysis of the design — Kent's exaggerated estimate of Jones's genius — The scheme for the whole palace — Jones's design for the façade of old St. Paul's — Thoughtless laudation of the art of Inigo Jones — Sir Christopher Wren — Artistic notions of the English dilettanti in the seventeenth century — Wren's architectural training — His visit to France — The Sheldonian Theatre — Wren's project for repairs of old St. Paul's — His commission to rebuild — His first scheme for the new edifice — Sources of inspiration for the great dome — Rejection of the first scheme — The so-called warrant design — The existing edifice — The structural system of the dome — Character of the interior of the church — The masking of the buttress system — Wren's city churches 226

CHAPTER XV

CONCLUSION

The architecture of the Renaissance not based on consistent principles — Incorrectness of the notion that the Renaissance aberrations in the use of the orders was but a free adaptation of the old elements to new conditions — The ancient architectural forms do not lend themselves to new conditions — Adaptation involves creative changes which wholly transform original elements — Influence of the writings of Vignola and Palladio in recent times — Modern recognition of the arbitrary character of the rules of the formalists — Genuine works of art not produced from rules — A juster sense of the real character of the architecture of the Renaissance shown by a few recent writers 247

ILLUSTRATIONS IN THE TEXT

		PAGE
1.	Hagia Theotokos. From Dehio and Bezold	11
2.	Aachen. From Dehio and Bezold	11
3.	Dome of Pisa	12
4.	Dome of Arnolfo	13
5.	Section of the Baptistery of Florence	14
6.	Dissection of the vault of the Baptistery	15
7.	System of the dome of Florence	17
8.	Section of the dome of Florence. From Sgrilli	18
9.	Part plan of the dome of Florence. From Sgrilli	18
10.	Plan of the chapel of the Pazzi	26
11.	Section of the vault of the Pazzi chapel	27
12.	Interior of the Pazzi chapel	28
13.	Façade of the Pazzi chapel	30
14.	Badia of Fiesole	32
15.	Impost of San Lorenzo	33
16.	Crossing pier of San Lorenzo	34
17.	Façade of Santa Maria Novella	36
18.	Plan of Sant' Andrea, Mantua	39
19.	Façade of Sant' Andrea, Mantua	40
20.	Arch of Septimius Severus	41
21.	Temple of Vesta, Tivoli. From Serlio	45
22.	San Pietro in Montorio. From Serlio	46
23.	Bramante's dome for St. Peter's. From Serlio	48
24.	Section of the Pantheon. From Fontana	50
25.	Plan of Bramante's dome. From Serlio	51
26.	Michael Angelo's model for the dome of St. Peter's	54
27.	Diagrams of vault construction	56
28.	Interior of dome of Salamanca	57
29.	Diagrams of vault construction	58
30.	Dome of St. Peter's. From the Report of the Mathematicians	61
31.	Plan of St. Peter's. From Fontana	67
32.	Section of aisle of St. Peter's. From Fontana and Letarouilly	69
33.	Pier of Sant' Agostino	72
34.	Façade of Sant' Agostino	73
35.	Exterior of Todi	75
36.	Interior of Todi	76
37.	Plan of San Biagio	77
38.	Interior of San Biagio	78
39.	Arcade. From Serlio	79
40.	Exterior of San Biagio	80
41.	Tower of Santo Spirito	82

FIG.		PAGE
42.	Santissima Annunziatta, Arezzo	83
43.	Vignola's entablature. From Vignola	85
44.	Half plan of Sant' Andrea. From Vignola	86
45.	Section of Sant' Andrea. From Vignola	87
46.	Sant' Andrea	88
47.	Order of Santa Maria degli Angeli	90
48.	Plan of the Gesù. From Vignola	91
49.	Façade of the Gesù. From Vignola	93
50.	Façade of the Gesù, Della Porta. From Vignola	94
51.	Pediment of Baalbek	95
52.	Tablet from Vignola	96
53.	Orders of San Giorgio	98
54.	Façade of San Giorgio	99
55.	The Redentore	100
56.	Window-head of the Mozzi, Florence	103
57.	Window-head of Perugia	103
58.	Court of the Riccardi	105
59.	Façade of the Rucellai	108
60.	Window of the Bartolini	110
61.	Façade of the Cancelleria	113
62.	Portico of the Massini	115
63.	Window of the Farnese	117
64.	Portal. From Serlio	118
65.	Part of façade of the Library of St. Mark	120
66.	Corner of the Parthenon	121
67.	Roman corner. From Serlio	122
68.	Corner of Library of St. Mark	123
69.	Window of Palazzo Cornaro	124
70.	Part of façade of the Porta del Palio	125
71.	Detail of Palazzo Bevilacqua	127
72.	Part of the Portico of Vicenza. From Palladio	129
73.	Plan of supports, Portico of Vicenza. From Palladio	130
74.	Arch of St. Simeon Stylites	131
75.	Loggia Bernarda, Vicenza	132
76.	Window of Palazzo Branzo	133
77.	Niche of the Basilica of Shakka	134
78.	Window of the Certosa of Pavia	137
79.	Sacristy of San Satiro	139
80.	Santa Maria delle Grazie	141
81.	East end of Como	143
82.	Portal of Como	145
83.	Porch of San Zeno	146
84.	Portal of San Pietro in Cielo d' Oro	147
85.	Window of nave of Como	148
86.	Column of San Zaccaria	150
87.	Plan of pier of San Salvatore	151
88.	Plan of pier of St. Mark's	151
89.	Façade of Santa Maria dei Miracoli	152
90.	Part of window of court of the Ducal Palace	155

FIG.		PAGE
91.	Portal of the Scuola di San Marco	157
92.	Part of the façade of the Scuola di San Rocco	158
93.	Window of the Palazzo Contarini	162
94.	One bay of basement of the Ospedale Maggiore	164
95.	Window of the Palazzo Martinengo	165
96.	Roman Arabesque relief	168
97.	Renaissance Arabesque relief	169
98.	Greek coin, magnified	170
99.	Arabesque by Filarete	171
100.	Console of pulpit in Santa Croce	172
101.	Leafage from the Ghiberti gates	173
102.	Pilaster in the National Museum, Florence	174
103.	Greek leafage	175
104.	Roman leafage	175
105.	Leafage of Brunelleschi	176
106.	Leafage of Brescia	176
107.	Leafage of San Gallo	177
108.	Relief of the Scala d' Oro	177
109.	Grotesque mask	177
110.	Cornice of Blois	181
111.	Azay le Rideau	182
112.	Portal of Azay le Rideau	183
113.	Portal of Châteaudun	185
114.	Part of the portal of Chenonceaux	187
115.	Part of the court façade of Blois	189
116.	Du Cerceau's print of the Fountain of the Nymphs	195
117.	Roman arch. From Serlio	197
118.	Part of Du Cerceau's print of Lescot's Louvre	198
119.	Plan of the Tuileries. From Du Cerceau	201
120.	Elevation of the Tuileries. From Du Cerceau	202
121.	De l'Orme's column. From De l'Orme	203
122.	De l'Orme's doorway. From De l'Orme	204
123.	Doorway. From Serlio	205
124.	Doorway of De l'Orme. From De l'Orme	208
125.	Façade of Charleval. From Du Cerceau	210
126.	Interior façade of Charleval. From Du Cerceau	212
127.	Chimney of Burghley House	217
128.	North side of court, Kirby Hall. From Gotch	219
129.	Gable of Kirby Hall. From Gotch	220
130.	Window of Walterstone Hall. From Gotch	222
131.	Impost of Cranborne Manor-House. From Gotch	222
132.	Portal of Wollaton Hall. From Gotch	224
133.	Basement of Whitehall. From Kent	230
134.	Front of old St. Paul's. From Kent	231
135.	Section of Wren's rejected scheme for St. Paul's. From Bloomfield	236
136.	Section of the dome of St. Paul's. From Longman	240
137.	Vaulting of St. Paul's	242
138.	Crossing pier and impost of St. Paul's	244
139.	Half section of the nave of St. Paul's. From Longman	245

LIST OF PLATES

		PAGE
I.	The Dome of Florence	16
II.	Interior of Sant' Andrea, Mantua	38
III.	The Dome of St. Peter's	63
IV.	The Riccardi Palace	103
V.	San Bernardino, Perugia	135
VI.	Ducal Palace, Venice	154
VII.	Palazzo Corner-Spinelli, Venice	160
VIII.	Palazzo del Consiglio, Verona	163
IX.	Relief of the Lombardi	169
X.	The Banqueting Hall, Whitehall	228
XI.	The Dome of St. Paul's	239
XII.	Interior of St. Paul's	242

CHAPTER I

INTRODUCTION

THE great change in ideas and ideals which, after the remarkable intellectual and artistic life of the Middle Ages, was manifested in the so-called Renaissance, is not always correctly conceived or fairly stated; and the character and merits of the Fine Arts of the Renaissance, as compared with those of mediæval times, have not, I think, been often set forth in an entirely true light. Of the merits of the best Italian art of the fifteenth and sixteenth centuries there can be no question, but the belief that this art is altogether superior to that of the Middle Ages will not bear examination in the light of impartial comparison.

The Fine Arts are always an expression of the historical antecedents, the intellectual, moral, and material conditions, and the religious beliefs of the peoples and epochs to which they belong. They derive their whole character from these antecedents and conditions, and cannot be rightly understood or appreciated without reference to them. Thus a brief consideration of these conditions in the Middle Ages on the one hand, and in the period of the Renaissance on the other, may help us to understand the nature of the above-mentioned change, and to gain a more discriminating appreciation of the real character of the artistic productions of the latter epoch.

During the Middle Ages ideas and imagination were governed by a religious faith which, though in many ways mistaken and misguided, was for the most part firm and unquestioning. Mediæval Christianity was a living power with the masses, and an inspiration to men of genius. The mediæval Christian mythology was well fitted to stimulate artistic invention, and the ideals which it maintained were full of beauty. It is true, indeed, that human conduct was not wholly governed by this faith; but the precepts of the Christian religion, as defined and interpreted by

the Roman church, were generally held as of supreme authority, and to them most people acknowledged that they ought to conform. This Christianity gave the chief motive power for the best activities of the time, and the social relations of men were, in theory at least, based upon its teachings. The history of the Middle Ages abounds in evidence that popular habits of life were in many ways exemplary. Villani tells us that the citizens of Florence lived in sobriety and frugality, that they had loyal hearts, were faithful to one another, and that they required the same fidelity in the administration of public affairs.[1] Florence in the fourteenth century was alive with industry, and the open country around the city was prosperous with agriculture. Of such conditions her Fine Arts were an outgrowth and expression.

But the mediæval faith began at length to weaken. The church, as an ecclesiastical establishment, had grown corrupt and oppressive, so that men of spirit were moved to reject its dogmas and to resist its intellectual tyranny. Independent thought began to widen the range of ideas, and the reading of ancient authors gave a fresh incentive to philosophical speculation, and awakened a spirit of scientific investigation, as well as a taste for ancient poetry and mythology. The desire for intellectual freedom, and the thirst for new knowledge, which were thus stimulated in the fifteenth century constitute the good side of the Renaissance movement, the side which has hitherto been most emphasized by writers, and to which the modern world is indebted for a strong stimulus in the direction of some of its most fruitful activities.

But there were other conditions that must not be ignored if we would rightly understand the spirit of the Renaissance, by which the ideals and aims of this brilliant epoch were materially qualified and weakened. Influences were at the same time at work that were not in harmony with what was best. The humanist learning bred a Neo-pagan spirit which favoured and strengthened a growing indifference to moral principles and religious beliefs. The strong feeling of opposition to the church was in part due to this. In fact, the Renaissance was by no means an entirely noble movement in the interest of spiritual and intellectual emancipation, or an unqualified advance in ideas and attainments beyond those of the Middle Ages. With all of its abuses the

[1] *Cronica di Giovanni Villani*, bk. 6, chap. 69.

church still stood for moral order and spiritual aspirations. The revolt against it was in part a revolt against both religion and morals. The animating spirit of the movement contained much that was unchristian and destructive of high ideals.

It is true that noble, and even pious, feelings survived in the minds of many men, especially during the early Renaissance time. Generous acts were still common among the merchant princes of Florence. In the early part of the fifteenth century the lives of Florentine patricians continued to be simple, and many of them recognized the responsibilities which their wealth imposed.[1] But toward the close of that century a different spirit prevailed. Luxury and extravagance took the place of plainer living, the pursuit of pleasure without regard to justice or morality engrossed the minds of men, and vice and crime flourished in high places until the prophetic denunciations of Savonarola were called down upon the wickedness and vanity of the upper classes.

Into the service of this luxurious and immoral life the Fine Arts were now called, and of the motives which animate such life they become largely an expression. The mediæval endeavour to embody the beauty of Christian ideals in works of art gave place to the desire to make the Fine Arts minister to sensuous pleasure and to mundane pride. In the height of its splendour the vicious life of Florence, the chief centre of literary and artistic productions, was appalling. Men now not only sought to escape from all forms of ecclesiastical and ascetic restraint; they went further, and freely proclaimed the sufficiency of intellectual, æsthetic, and sensuous enjoyments to satisfy the whole of man's nature. They mistook the illusive pleasures of self-indulgence for the true joys of life. In abandoning himself to mundane pursuits and gratifications, the man of the Renaissance fancied that he got the utmost good out of this life, and took little thought of any other.

In a corresponding spirit the architect now set himself to the task of producing a luxurious and specious style of palatial architecture, drawing his inspiration from the monuments of imperial Rome, and the sculptor and the painter sought to portray physical beauty as the primary and sufficient end of their art. Their

[1] Cf. Introduction to Villari's *Niccolo Machiavelli and his Times*, London, 1878.

conceptions of this beauty were in part drawn from the remains of the art of classic antiquity that were then accessible. But the ancient works of art known at that time were not those of the best periods of ancient artistic culture. They were, for the most part, works of the decadent Greek schools as represented in Roman copies. Many of these have, indeed, a great deal of sensuous charm, and display much technical refinement; but they are wanting in the nobler qualities that characterize the finest arts of Greece. From the Roman copies of fauns, Apollos, and Venuses that had been preserved in Italy, it was impossible that high inspiration and true guidance should be drawn.

The Fine Arts of the Renaissance are in part a reflection of this decadent art of classic antiquity, and in part an expression of something quite different which was peculiar to the Italian genius at this time. To the man of the Renaissance the classic inspiration was necessarily different from what it had been to the man of antiquity. To the ancient Greek and Roman the pagan ideals had been real, and their inspiration was genuine; but to the Italian of the fifteenth century these ideals could not have the same meaning, or supply a true incentive. After the intervening centuries of Christian thought and experience it was impossible for men to approach the ancient themes in the spirit of the ancients. Thus the Neo-pagan Art of the Renaissance is not wholly spontaneous and sincere. It contains elements that are foreign to the pagan spirit, and not compatible with it. The art of the Renaissance is, in fact, an embodiment of heterogeneous ideas and conflicting aims.

Much has been said of the importance of the Renaissance movement in developing the individual man, and it is true that one of the most marked characteristics of the artistic productions of this time, as contrasted with those of the Middle Ages, is a distinctly individual, or personal, stamp. This is especially marked in architecture. Whereas before, and during, the Middle Ages in particular, architecture had been a communal art, the joint product of companies of men working together on traditional lines, with common aims and aspirations, it was now become very largely an expression of the personal tastes of individuals working independently of each other. The architects of the Renaissance were scholars and artists, newly

acquainted with the Roman antique, animated with desire to appropriate what they apprehended of its principles, and at the same time ambitious to achieve personal fame. A building of the Renaissance is thus always the product of the fancy of a particular designer, as a building of the Middle Ages is not. But architecture of the highest excellence can hardly be produced by an individual working independently. The noblest architecture of the past has always been an evolution of a people, the joint product of many minds, and the natural expression of many conditions. The importance of the opportunity for the development of the individual opened by the Renaissance has been exaggerated, and the conditions conducive to such development which had existed before have been too much overlooked. We are apt to forget that the mediæval communal life stimulated the faculties of the individual in many noble ways, and we do not always enough consider that individuality may be exercised in harmful as well as in salutary directions. The individuality that had been developed by the institutions and the intellectual life of the Middle Ages was vastly different from that which was produced by the influences of the Renaissance, and it was in many ways more excellent. The individuality of the Middle Ages was obedient to the demands of corporate and coöperative life, while that of the Renaissance was independent and capricious. Conditions favourable to individual development had arisen early in the Middle Ages in connection with organized monastic life. The cultivation of literature, philosophy, and the Fine Arts in the monasteries had given considerable range to the exercise of individual powers,[1] though in limited directions, and the rise of the great communal organizations tended still further to stimulate an admirable individual development. But the individual of the Middle Ages felt himself a part of an organized body from which he derived moral support, and with which he felt that he must coöperate. It was the strong communal spirit, giving unity of purpose to the varied faculties of individuals, that made possible the production of the noble arts of the Middle Ages; and it is as the expression of this unity of purpose coördinating the fine artistic energies of the time, that these arts are preëminently notable. In so far

[1] Cf. Montalembert, *Les Moines d'Occident*, vol. 2, p. 488 *et seq.*

as the development of the individual in the period of the Renaissance differed from that of the Middle Ages, it did so mainly in favouring individual caprice at the expense of harmonious collective effort. The capricious and irresponsible individuality of the time, together with the confused complexity of ideas and aims, gave rise to most of that which is open to criticism in the Fine Arts of the Renaissance.

Nearly all of the architects of this epoch were sculptors and painters. Few of them had ever had a thorough training in architectural design and construction, such as had been general with the members of the great mediæval building corporations; and hardly any of them were endowed with a natural aptitude for logical construction. The artistic genius of the Italian people has, in fact, always been essentially a genius for painting, and the painter's habits of mind are constantly manifested in the Italian architecture of all epochs. This is especially noticeable in their use of the Orders, which is rarely based on any structural need, but is governed only by the fancy of the designer in seeking to produce a pleasant surface composition. Columns and pilasters, answering to nothing in the real structural scheme of a building, are disposed with no thought save for agreeable lines and rhythmical spacings. Thus they soon came to be used in many novel ways. They were set in pairs, stretched through several stories, embraced by pediments, and varied in countless fanciful ways. In this way the architecture of the Renaissance even more than that of imperial Rome, became a mere surface architecture differing fundamentally from all of the great architectural systems of ancient times, and of the Middle Ages. This is a consideration of capital importance of which too little account has been taken. The unqualified and shortsighted laudation of this architecture by the sophisticated writers of the sixteenth century has been too readily accepted, and a more discriminating judgment cannot fail to alter materially the esteem in which it has been held.

In surveying the history of architectural design with attention to its fundamental principles we shall find that there have thus far existed in Europe but three entirely consistent and distinctive styles; namely, the Greek, the Byzantine, and the Gothic. All other varieties of architecture may be broadly divided into

two classes, the one consisting of buildings of transitional character, and comprising all organic and progressive types of Romanesque, and the other composed of styles made up of mixed elements not in process of organic fusion. The first architecture of the second class is that of imperial Rome with its offshoots, the Christian Roman and the numerous subsequent forms of the basilican type, and the second is the architecture of the Renaissance. When, after studying the architecture of Greece, we come to examine that of Rome, we are at once struck by the incongruous mixture of elements which it exhibits; and although we may be impressed by its grandeur, we are unable to give it our unqualified admiration. In Byzantine art we find Greek, Roman, and Oriental elements, logically modified in adaptation to new uses, and fused into a radically new and distinctive style of entire consistency and great nobility.[1] In the transitional art of western Europe we see the creative genius of Northern races gradually evolving the Gothic style, in which elements derived from the older systems are wholly recreated and assimilated in a wonderful manner, and when we turn from the beauty, and the structural logic, of the consummate Gothic Art[2] to the architecture of the Renaissance, a similar contrast is again apparent.

In one branch of art, however, the best achievements of the Renaissance period command our unqualified admiration; namely, the art of painting. As before remarked, the Italian genius appears to have been primarily a genius for painting, and in this field the conditions all conspired to produce results that were without precedent for excellence, and that still remain unrivalled. Yet here, too, we shall need to discriminate. Italian painting of the sixteenth century presents a variety of phases that are by no means of equal merit, and the noblest forms of it show the least of the essentially Renaissance spirit. The Christian painters of the fourteenth century had laid a foundation on which their successors could build, and this gave a character to much of the art of the Early Renaissance which the dominant influences of the time itself could not give.[3] But

[1] Cf. my *Development and Character of Gothic Architecture*, pp. 304–306.

[2] The Gothic of northern France of the twelfth and early thirteenth centuries, the only true Gothic art, is here meant.

[3] The Viscount Delaborde, in his book *La Gravure en Italie avant Marc-*

the spirit of the sixteenth century was unfavourable to the highest ideals and the most exemplary practice, and, save for the works of a few exceptional men, there were no high achievements in painting after about 1520, except in Venice, where more than elsewhere natural and wholesome conditions had been maintained.

Among the many influences that were stirring the artistic minds of the Renaissance there were two of chief importance, the Neo-pagan revival, and the true intellectual life of the people which was independent of the retrospective movement, and had been growing up through the Middle Ages. The most sterling qualities of the artistic products of the period are due to this intellectual life, and Florentine and Venetian painting, the two most admirable phases of the supreme art of Italy, are the finest expression of this. In other words, it was not the revival of interest in ancient thought and feeling, nor the influence of classic models, so much as the ripened development of the native Italian genius itself, that produced what is most excellent in the Fine Arts of the Renaissance. A consciously retrospective motive can hardly be a vital force in artistic development, and the direct attempt, in so far as such attempt was made, to shape the arts after classic models was an unmixed evil. The native traditions and innate tendencies of the Italian people were enough of themselves to give a strong classic quality to their art. In architecture what of classic feeling was natural to them needed only in the fifteenth century to be freed from the elements which had been misappropriated from the mediæval art of the North to allow it true expression in forms adapted to their needs. In normal human progress each successive stage of development creates its own appropri-

Antoine, Paris, 1883, p. 32, remarks on this with admirable discrimination as follows: "Certes, sous le pinceau de Botticelli, de pareils sujets [subjects drawn from Classical Mythology] gardent un caractère d'élégance tendre et de mélancolie presque analogue à la physionomie des scènes où figurent l'Enfant-Dieu et la Mâdone. Il y a loin de cette manière d'interpréter la Fable aux panégyriques violemment ou galamment licencieux que les hôtes les plus mal famés de l'Olympe obtiendront dans les siècles suivants; il y a loin des gracieuses inventions de Botticelli aux *lascivie* brutales de Jules Romain et d'Augustin Carrache ou aux gamineries mythologiques de Boucher et de ses pareils, et l'on a quelque peine aujourd'hui, en face d'aussi chastes tableaux, a comprendre la véhémence des reproches fulminés jadis par Savonarole."

ate forms; but peoples, like individuals, sometimes pass through periods of partial aberration, and while genius may still find scope enough, as in the Renaissance, to produce much that is admirable, the noblest forms of art are not an outgrowth of such conditions.

CHAPTER II

THE DOME OF FLORENCE

THE great dome of the cathedral of Florence marks the beginning of the Renaissance movement in architecture, though in its general form and structural character it has no likeness to ancient domes, and has few details drawn from the Roman classic source. It exhibits a wide departure from any previous forms of dome construction, and is an expression of the creative genius of a remarkably gifted man of great independence, working under inspiration drawn in part from ancient sources, in part from mediæval building traditions, and in still larger part from the new motives that were beginning to animate the artistic ambitions of the fifteenth century.

The dome of the Pantheon and the dome of St. Sophia, the two greatest domes of former times, had been built on principles that did not admit of much external effect, and the numerous smaller ones of the Middle Ages, in western Europe, had been equally inconspicuous externally, if not entirely hidden from view, in consequence of rising from within a drum which reached far above the springing level. In most cases the whole construction was covered with a timber roof, so that from the outside the existence of a dome would not be suspected. This was a secure mode of construction, and one that for stability could not be improved; but it did not give the imposing external effect that Brunelleschi sought.

Attempts to make the dome a conspicuous external feature had indeed been made before Brunelleschi's time. The later Byzantine builders had raised small domes on drums resting on pendentives, and rising above the main roof of the building, but they had still carried these drums up somewhat above the springing of the dome, and had further fortified them with buttresses built over the supporting piers, as in Hagia Theotokos of Constantinople (Fig. 1). Thus in such designs the dome

still remains partly hidden from view, the drum being the most conspicuous part of the composition. Among the early domes

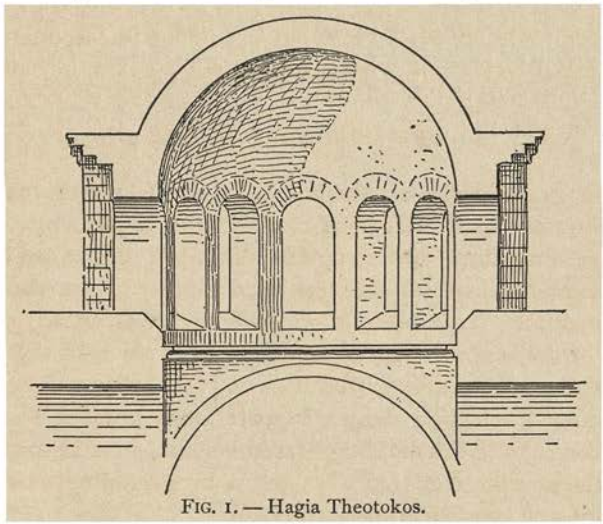


FIG. 1. — Hagia Theotokos.

of western Europe is that of Aachen (Fig. 2). In this case the drum is carried up far beyond the springing, and is covered

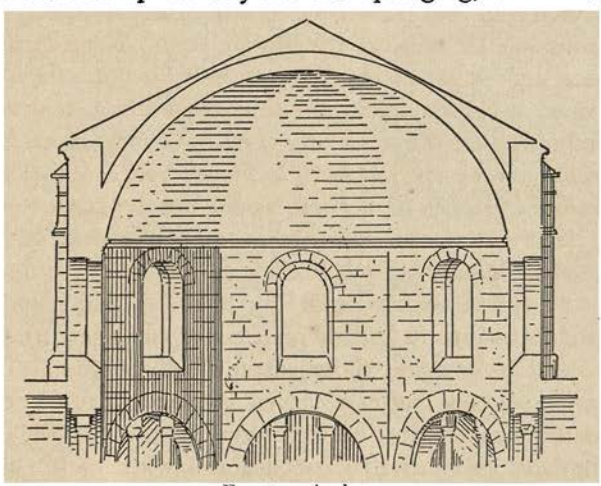


FIG. 2. — Aachen.

with a timber roof which completely hides the dome from external view. The same adjustment of the dome to its drum is, with minor variations of form (the dome being in some cases

polygonal on plan, as at Aachen, and in some cases hemispherical) found in most other mediæval domes, and the timber roof over all is likewise common. But in a few cases a different scheme was adopted in which the dome is set on the top of the drum instead of within it. In such cases, however, the drum is low, not rising above the ridge of the timber roof of the nave, and the dome, being unprovided with abutment, is

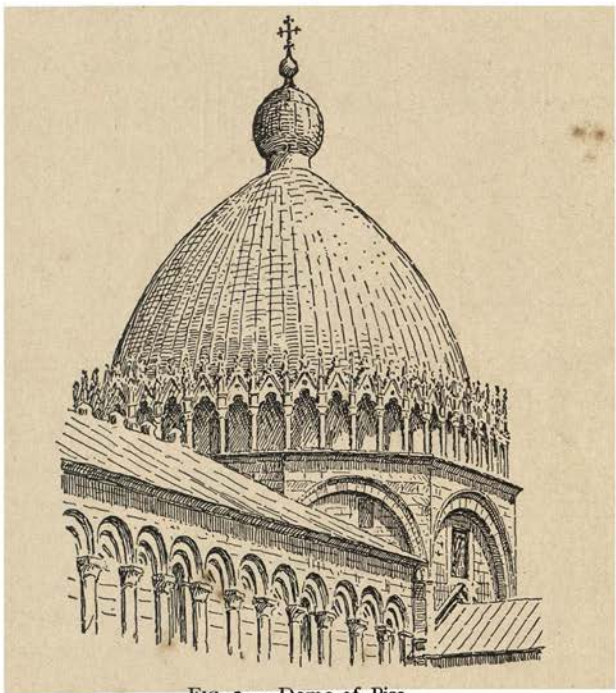


FIG. 3. — Dome of Pisa.

insecure except in so far as it may have a form that is self-sustaining as to thrusts (which removes it from the true dome shape), or may be secured by some kind of binding chain.[1] An example of such a dome occurs on a small scale over the crossing of the cathedral of Pisa (Fig. 3). This dome is not hemispherical, its sides rise steeply, and with such moderate curvature as to render it measurably self-sustaining as to

[1] The elevated domes of Arabian architecture are in many cases constructed of wood and stucco. When of masonry they are, I believe, either weighted within where the thrusts fall, or are bound with chains.

thrust.[1] Another instance of a similar scheme, and on a larger scale, is that which appears to have formed a part of Arnolfo's design for the cathedral of Florence. This dome was never executed, and our knowledge of it is derived from the well-known fresco in the Spanish chapel of Santa Maria Novella.[2] Here both the dome and the drum are octagonal in conformity with the plan of the part of the building which it covers. The outline (Fig. 4) is slightly pointed, but the sides

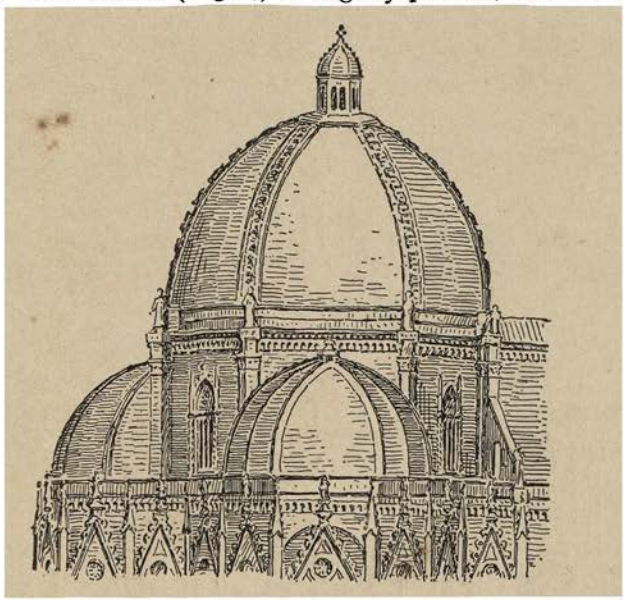


FIG. 4. — Dome of Arnolfo.

are nevertheless so much curved in elevation that a structure of this form would not stand without strong cinctures. It is, however, not unlikely that the fresco painter has given it a more bulging shape than Arnolfo intended. But domes of this character were exceptional in the Middle Ages. The builders of that epoch confined their practice for the most part to the

[1] I have not examined the dome of Pisa closely on the spot, but I suppose it is bound with a chain, as we know was the custom at a later time. Cf. Fontana, vol. 2, p. 363.

[2] There can be little doubt that the dome represented in this fresco embodies the original project of Arnolfo, though this has been questioned. Cf. Guasti, *Santa Maria del Fiore*, etc., Florence, 1887, pp. lx–lxi.

safer form in which the vault is made to spring from within the drum, and is thus necessarily, either in part or entirely, hidden from external view.

A remarkable dome of this latter class is that of the Baptistery of Florence, which, though the building has undergone various superficial transformations since its original construction at an early, though uncertain, epoch, has come down to us in essential integrity. This building on plan is in the form of an octagon, and the dome is of corresponding shape, and sprung

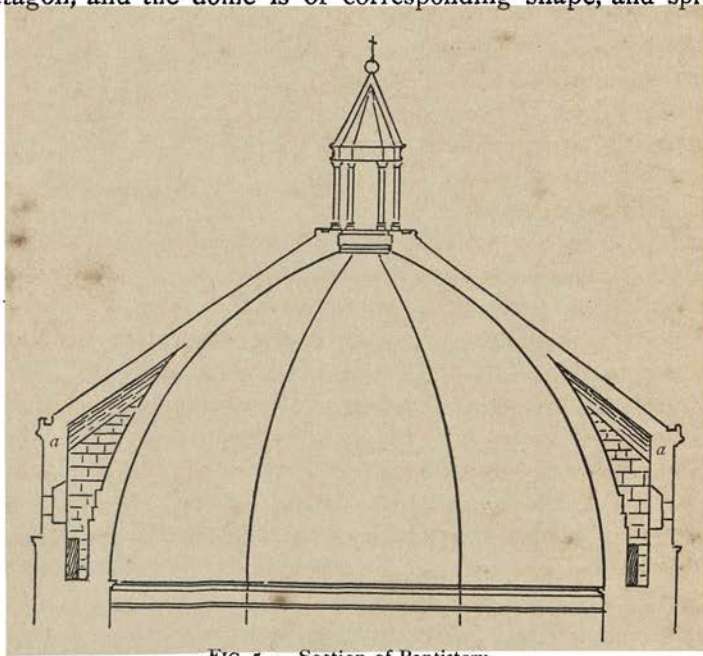


FIG. 5. — Section of Baptistery.

from a level far below the top of the enclosing walls. In elevation the dome (Fig. 5) has a pointed outline, and is covered by a pyramidal roof of stone the upper part of which is incorporated with the dome itself, while beneath the lower portion is a void between the dome and the enclosing wall. The structure has an internal anatomy that is both ingenious and admirable. The span is about 25 metres, and the wall at the level of the springing is over 3 metres thick. Above this the wall (*a*, Fig. 5) rises to a height of about 8 metres. The dome at its base is about 1 metre thick, and its extrados rises vertically to a height

of about $2\frac{1}{2}$ metres, leaving an open space between it and the wall of the enclosing drum of 1.26 metres in width. Above this vertical portion the extrados is stepped by several courses of masonry, somewhat after the manner of the dome of the Pantheon. From the reëntrant angles of the octagon (*a*, Fig. 6) solid abutments are built up against the salient angles of the vault, and, between these, two secondary abutments (*b*) are carried up against each of its sides. These buttresses are in the form of cross walls dividing the space on each side of the octagon into three compartments, and over each of these compartments a barrel vault, on an axis inclined in conformity with the slope of the roof, is turned. The upper ends of these vaults intersect on the surface of the dome, as shown in Figures 5 and 6. The voids between the crowns of these vaults and the buttresses are filled in with masonry so as to form the sloping planes of the roof below where it is incorporated with the dome, and on these are laid the slabs that form the external covering. With such an effective buttress system as is here provided it is hard to find a reason for the chain of timbers which is inserted at the haunch of the dome. The constructive principle embodied in this monument is altogether sound,[1] and its architectural character is in keeping with the construction.[2]

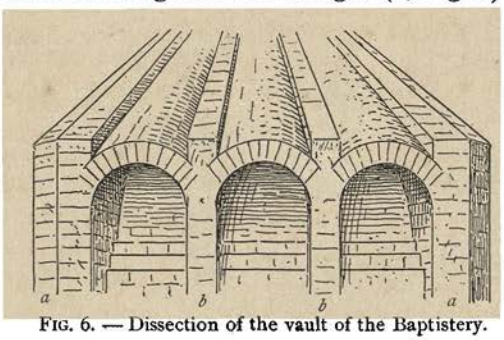


FIG. 6. — Dissection of the vault of the Baptistery.

Such were the models of mediæval dome building accessible to Brunelleschi when he was forming his great scheme for the covering of the octagon of the cathedral of Florence. But the idea of a low dome, or a hidden dome, could not meet the wishes

[1] This needs to be qualified. The thrusts of the dome being continuous logically call for continuous abutment, as in the Pantheon, but the intervals between the abutting members are so small that the resistance is practically continuous.

[2] By its architectural character, I mean its character as a work of art. By the term "architecture" we properly mean not building merely, but the fine art of beautiful building.

of the Florentines of the fifteenth century. Their civic pride and large resources called for an imposing design which should make the dome a dominant architectural feature of their city. It was decided that it should be raised upon the top of a high drum, and the task to which Brunelleschi applied himself was to fulfil this requirement.

Of the vast and soaring dome which he succeeded in erecting many opinions have been held, but all beholders are impressed with its grandeur. It has been common to speak as if the master had been chiefly inspired by the ancient monuments of Rome, and had taken the Pantheon as his principal model.[1] But although he came to his task fresh from the study of the ancient Roman monuments, and undoubtedly had the Pantheon much in mind, yet the dome which he produced has little in common with that great achievement of imperial Roman constructive skill. In general it follows, though with great improvements as to outline and proportions, the scheme of Arnolfo as illustrated in the fresco of the Spanish Chapel; but the model to which it most closely conforms, notwithstanding the obvious and essential points of difference, is that of the Baptistery just described. There can, I think, be little question that this monument supplied the chief inspiration and guidance to both Arnolfo and Brunelleschi. A comparison will show that the dome of the cathedral, with its supporting drum, is, in fact, little other than a reproduction of the Baptistery of San Giovanni in a modified form, and enlarged proportions, raised over the crossing.

But while taking the scheme of the Baptistery as the basis of his own scheme, Brunelleschi was obliged to make some daring changes in order to give his design the external character which he sought. This great dome (Plate I), like that of the Baptistery, is octagonal in plan and pointed in elevation. It rises from the top of the octagonal drum, and consists of two nearly concentric shells of masonry, with an interval between them. Eight vast ribs of stone rise from the angles of the drum and

[1] This has been based on the affirmations of Vasari, who states that it was Brunelleschi's purpose to "restore to light the good [*i.e.* the ancient Roman] manner in architecture," and that he had "pondered on the difficulties" involved in vaulting the Pantheon. Cf. *Le Opere di Giorgio Vasari*, Milanesi edition, Florence, 1880, vol. 2, p. 337.

DOME OF BRUNELLESCHI
Florence

converge on the curb of an opening at the crown. These ribs extend in depth through the whole thickness of the double vault and unite its two shells. Between each pair of these great ribs two lesser ones are inserted within the interval that divides the two shells, and nine arches of masonry, lying in planes normal

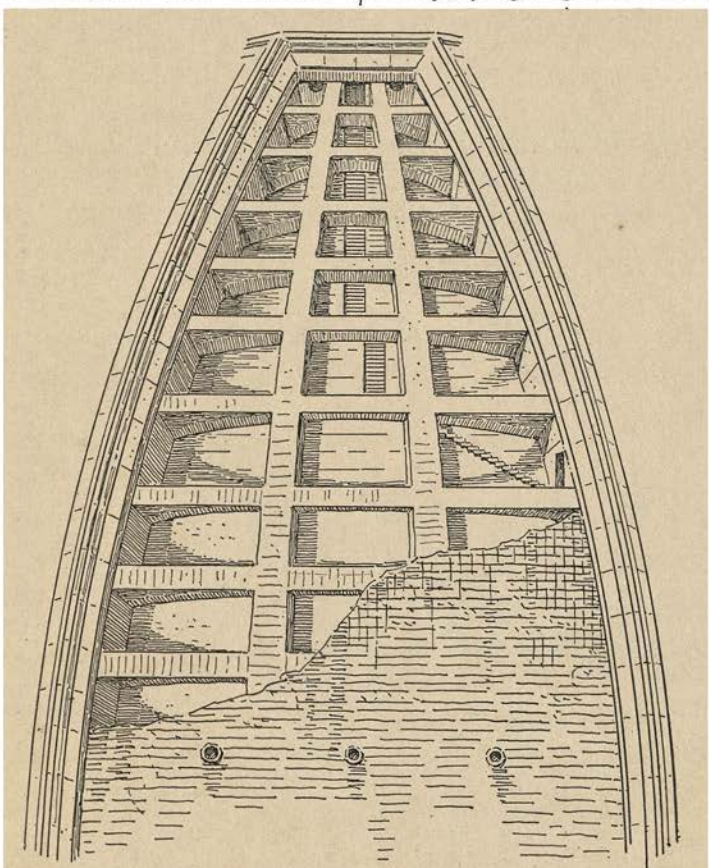


FIG. 7. — System of the dome.

to the curve, are sprung between the great ribs and pass through the lesser ones on each side of the polygon (Figs. 7 and 8), while a chain of heavy timbers (*a*, Fig. 8, and Fig. 9), in twenty-four sections, clamped together at the ends with plates of iron, binds the whole system between the haunch and the springing. So much of the internal structure can be seen in

the monument itself, but further details are described in Brunelleschi's own account of what he intended to do.[1] From this

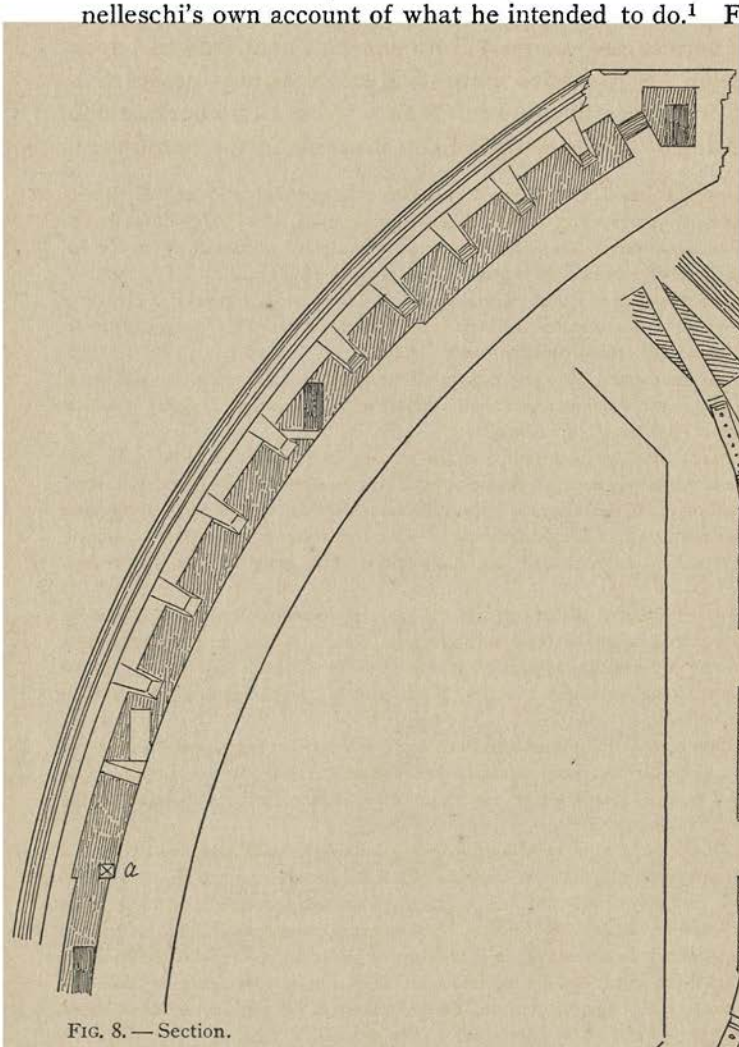


FIG. 8. — Section.

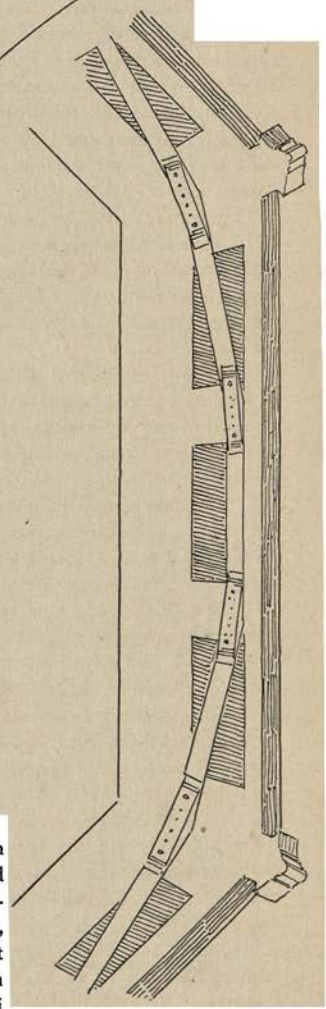


FIG. 9. — Part Plan.

[1] A copy of this document is said to have been preserved for some time in the archives of the Board of Works, but it seems to have disappeared subsequently. It is given, however, by several writers, Vasari and Guasti among them. There are slight differences of wording and of measurements between the transcripts of these two authors. That of Guasti is the most intelligible, and seems to agree best with

we learn that the base of the dome, which was to be built solid to the height of $5\frac{1}{4}$ braccia, was to consist of six courses of long blocks of hard stone (*macigno*) clamped with tinned iron and upon this were to be chains of iron.[1] Mention is also made of a chain of iron over the timber chain ("in su dette quercie una catena di ferro"); but no such chain is visible in the monument,

the monument. It reads as follows: "In prima: la cupola, dallo lato di dentro lunga a misura di quinto acuto, negli angoli sia grossa nella mossa da piè braccia $3\frac{3}{4}$, e piramidalmente si muri; sicchè nella fine, congiunta con l' occhio di sopra, che ha a essere fondamento e basa della lanterna, rimanga grossa braccia $2\frac{1}{2}$. Facciasi un' altra cupola di fuori sopra questa, per conservarla dallo umido, e perchè la torni più magnifica e gonfiata; e sia grossa nella sua mossa da piè braccia $1\frac{1}{4}$, e piramidalmente segua, che insino all' occhio rimanga braccia $\frac{3}{4}$.

"El vano che rimarrà da l' una cupola all' altra, sia da piè braccia 2: nel quale vano si metta le scale per potere cercare tutto tra l' una cupola e l' altra; e finisca 'l detto vano a l' occhio di sopra braccia $2\frac{1}{3}$.

"Sieno fatti ventiquattro sproni, che otto ne sieno negli angoli e sedici nelle faccie: ciascuno sprone negli angoli grosso dappiè braccia sette. Dalla parte di dentro, e di fuori, nel mezzo di detti angoli, in ciascuna faccia, sia due sproni; ciascuno grosso dappiè braccia quattro; e lunghe insieme le dette due volte, piramidalmente murate insieme insino alla sommità dell' occhio inchiuso dalla lanterna, per iguale proporzione.

"I detti ventiquattro sproni con le dette cupole sieno cinti intorno di sei cerchi di forti macigni, e lunghi, e bene sprangati di ferro stagnato; e di sopra a detti macigni, catene di ferro che cingano d' intorno la detta volta, co' loro sproni. Hassi a murare di sodo, nel principio braccia $5\frac{1}{4}$ per altezza; e poi seguano gli sproni, e dividansi le volte.

"El primo e secondo cerchio, alto braccia 2; e 'l terzo e quarto, alto braccia $1\frac{1}{3}$; e 'l quinto e sesto cerchio, alto braccia 1: ma 'l primo circhio dappiè sia, oltre a ciò, afforzato con macigni lunghi per lo traverso, si che l' una volta e l' altra della cupola si posi in su detti macigni.

"E nell' altezza d' ogni braccia 12, o circa, delle dette volte, sieno volticciuole a botte tra l' uno sprone e l' altro, per andito alla detta cupola; e sotto le dette volticciuole, tra l' uno sprone e l' altro, sieno catene di quercia grosse, che leghino i detti sproni e cingano la volta dentro; e in su detti quercie una catena di ferro.

"Gli sproni murati tutti di pietra di macigno e pietra forte, e le facce della cupola tutte di pietra forte, legate con sprone insino all' altezza di braccia 24: e da indi in su si muri di mattoni o di spugna, secondo che si delibererà per chi allora l' avrà a fare, più leggieri che pietra.

". . . Murinsi le cupola nel modo di sopra, senz' alcuna armadura, massime insino a braccia 30; ma da indi in su, in quel modo che sarà consigliato e deliberato per quei maestri che l' avranno a murare: perchè nel murare la pratica insegna quello che si ha da seguire." — Guasti, *La Cupola di Santa Maria del Fiore*, Florence, 1857, pp. 28–30.

[1] Durm, *Die Dom Kuppel in Florenz*, etc., Berlin, 1887, Plate I, gives an admirable illustration of the internal system of this remarkable dome, and shows the masonry of the solid base with its clamps and chains, as described in the document quoted by Guasti (note, p. 18).

and if it exists, it must be embedded in the masonry of the vault, like the chains at the base.

It will thus be seen that while Brunelleschi's scheme is essentially different from that of the Baptistery, its structural system is little more than an ingenious modification of it. The parts of the one answer to those of the other with singular completeness. The attic wall and pyramidal roof of San Giovanni are transformed into the external shell of the cathedral dome, the angle buttresses of the older monument become the great angle ribs of Brunelleschi's vault. The intermediate abutments of the Baptistery are changed into the intermediate ribs of the great dome, and the inclined barrel vaults of the Baptistery scheme are represented in the cathedral dome by the arches sprung between the great angle ribs.

It has been thought by some writers that the rib system of the dome of Florence gives the structure a somewhat Gothic character, and it is sometimes called a Gothic dome.[1] But there can be no such thing as a Gothic dome. It is impossible for a dome of any kind to have the character of a Gothic vault. The difference between the two is fundamental. A Gothic vault is a vault of concentrated thrusts, and it requires effective concentrated abutments. A dome is a vault of continuous thrust, and for sound construction it requires continuous abutments, as in the Pantheon. Whatever use the ribs of Brunelleschi's vault may have, they do not, and cannot, perform the function of the ribs in Gothic vaulting. Their use is to strengthen the angles of the dome, and to augment its power of resistance to the weight of the lantern which crowns it. They do not support the vault as the ribs of a Gothic vault do. Being composed of very deep voussoirs, they have more strength to withstand thrusts, as well as to bear crushing weight, than the enclosing shells have, and thus to some extent they may hold these shells in. But it appears plain that the architect did not feel confidence in their power to perform this function without reënforcement by a chain, or chains, which, in his own words, "bind the ribs and hold the vault in" (che leghino i detti sproni e cingano la volta dentro). However this

[1] This idea finds expression in the latest work that I have seen on the subject: *Die Kuppel des Domes Santa Maria del Fiore zu Florence.* Von Paul Wenz, Berlin, 1901, p. 52; also in Durm, *Die Baukunst der Renaissance in Italien*, p. 406.

may be, the ribs of a dome cannot have any function like that of the ribs in Gothic vaulting. The shell of a Gothic vault is not held in by the ribs, nor is it in any way incorporated with them. Both shell and ribs are held in by the buttresses. This point will be considered further in connection with the dome of St. Peter's.

The whole scheme of this dome was a daring innovation of one man, and in this it differs from former architectural innovations, which were the comparatively slow outcome of corporate endeavour, progressive changes being so gradual that no wide or sudden departures from habitual modes of building were made at any one time, or by any one person.

It was a prodigious undertaking. The span of the dome is nearly a hundred and forty feet, the springing level is a hundred and seventy-five feet above the pavement, and the height of the dome itself, exclusive of the lantern, is about a hundred and twenty feet. Such a project might well appall the most courageous of building committees, and we need not wonder that the Board of Works drew back in dismay when it was first laid before them.[1]

The successful accomplishment of the work, and the stability which it has thus far maintained, show that the architect was a constructor of great ability,[2] and the fact that he managed to raise the vast fabric without the use of the ponderous and costly kind of centring that had been commonly employed in vaulting, makes the achievement still more remarkable. The precise manner in which he did this is not clear, but of the fact there appears no question.[3]

[1] For a full account of the deliberations held, as well as for much else of importance relating to the building of this dome, see Professor C. E. Norton's *Church Building in the Middle Ages*, New York, Harper & Brothers, 1880.

[2] But while Brunelleschi appears to have had great natural constructive aptitude, he had not had a sound training or experience in construction. Such training would have taught him that it would not do, under any circumstances, to spring a vault from the top of a wall, and he ought to have learned this from his study of the ancient Roman monuments.

[3] Nelli, *Discorsi di Architettura*, Florence, 1753, p. 74, reproduces an old drawing which purports to show the form of the scaffolding that Brunelleschi employed. This drawing bears the following inscription: "Questa Dimostrazione è di Filippo Brunelleschi Architetto fatta per e Ponti della Cupola di S. M'ra. del Fiore di Firenze nell' Anno M.CCCCXIX e fu quella che mostrò quando fu lasciato in libertà di dover esser solo nell' operazione di d.ª cupola senza il Ghiberti suo compagno non avendola voluta dar fuori prima di non essere libero Architetto di

The dome of Florence is indeed a remarkable piece of construction, and it is no less remarkable as a work of art. In beauty of outline it has not, I think, been approached by any of the later elevated domes of which it is the parent. Yet with all of its mechanical and artistic merit, the scheme is fundamentally false in principle, since it involves a departure from sound methods of dome construction. A bulging thin shell of masonry on a large scale cannot be made secure without abutment, much less can such a shell sustain the weight of a heavy stone structure like the lantern of this monument, without resort to the extraneous means of binding chains. A builder having proper regard for true principles of construction in stone masonry would not undertake such a work. For although it may be possible to give the dome a shape that will be measurably self-sustaining as to thrusts, as Brunelleschi clearly strove to do,[1] it is not possible to make it entirely so, and therefore if deprived of abutment it must be bound with chains. But a structure of masonry which depends for stability on binding chains is one of inherent weakness, and thus of false character.[2]

From these considerations it appears to me that Brunelleschi led the way in a wrong direction, notwithstanding the nobility of his achievement from many points of view. And in following his example modern designers of elevated domes

da Opera; come sentiranno nella sua Vita scritta da Diversi." Brunelleschi, in his account of his intentions before the Board of Works (note, p. 19), would not explain his scheme for the scaffolding. He said merely that the vault was to be raised, without centring, to the height of 30 braccia, and from that level upwards, in the manner that should be advised by those who might then have the work in charge.

[1] In his explanation of his scheme before the Board of Works, as given by Vasari, Brunelleschi begins as follows: "Considerato le difficultà di questa fabbrica, magnifici Signori Operaj, trovo che non si può per nessun modo volgerla tonda perfetta, atteso che sarebbe tanto grande il piano di sopra, dove va la lanterna, che mettendovi peso rovinerebbe presto." *Op. cit.*, vol. 2, p. 347.

[2] It may be thought that this would condemn the use of metal clamps in masonry, such as were inserted in the walls of the Parthenon, or the wooden ties that were, in some cases, used in parts of Gothic buildings. But there is a wide difference between such use of clamps and ties, and the binding chains of the great domes of the Renaissance. In the Greek and Gothic work the masonry forms are favourable to stability independently of the clamps and ties. These were inserted either for security against unusual dangers, as from earthquakes, or for temporary security against rupture while the work was in progress, before the interaction of the parts of the system was fully established; but a dome without abutment violates the constant conditions of stability.

have wandered still farther, as we shall see, from the true path of monumental art.

Moreover, when we consider that a dome set within its drum is not only stronger, but that it is also much better for interior effect, the dome of the Pantheon still remaining the grandest and most impressive arched ceiling of its kind in the world, the unbuttressed modern domes, with their manifold extraneous and hidden devices for security, appear still less defensible.

But in the architectural thought of the Renaissance little heed was given to structural propriety or structural expression, and the Italian writers, who have largely shaped our modern architectural ideas, have not only failed to recognize the inherent weakness of such a building as the dome of Florence, but have even considered the work praiseworthy on account of those very characteristics which make it weak. Thus Sgrilli lauds Brunelleschi for having had the "hardihood to raise to such a height the greatest cupola which until its time had ever been seen, upon a base without any abutments, a thing that had not before been done by any one." [1] And Milizia says, "It is worthy of special notice that in the construction of this cupola there are no visible abutments." [2]

As to the permanent stability of this dome various opinions have been held by the experts among the older writers.[3] Its form is, as we have seen, as favourable to stability as it would be possible to make that of any vault which could be properly called a dome. It appears to the inexperienced eye as stable as a crest of the Apennines. Every precaution as to material and careful workmanship seems to have been taken to make it secure. The wall of the drum on which it rests is five metres in thickness, and the solid base of the dome itself is built, if the architect's scheme was carried out as he had stated it before the Board of Works, of large blocks of hard stone, thoroughly bonded and clamped with iron. The lower system is sufficiently strong, and appears to rest on a solid foundation. But nevertheless there are ruptures in various parts of the structure

[1] *Discrizione e Studj dell' Insigne Fabbrica di S. Maria del Fiore*, Florence, 1733, p. xxi.

[2] *Memorie degli Architette*, etc., Florence, 1785, vol. I, p. 190.

[3] Fontana, Nelli, Cecchini, and others.

which have caused apprehensions of danger,[1] and its future duration must be regarded as uncertain. The writers who have maintained that it is secure have argued on the assumption that the parts of a dome all tend toward the centre.[2] These writers overlook the fact that the force of gravity above, especially when the dome is heavily weighed by a lantern, neutralizes the inward tendency of the lower parts and causes a tendency in those parts to movement in the opposite direction. This neutralizing force is lessened by giving the dome a pointed form, as Brunelleschi has done, but, as before remarked (p. 22), it can hardly be overcome entirely so long as any real dome shape is preserved.[3]

It may be thought that the object which Brunelleschi had in view, of producing a vast dome that should be an imposing feature of the cathedral externally, justifies the unsound method of construction to which he resorted (the only method by which the effect that he sought could be attained). But structural integrity is, I think, so fundamental a prerequisite of good architecture that in so far as this gifted Florentine was obliged to ignore sound principles of construction in order to attain an end not compatible with such principles, the result cannot be

[1] These ruptures were first observed in the year 1693 (Nelli, *op. cit.*, p. 13), and it was then advised by the architect Carlo Fontana to add a new chain of iron. Nelli, however, argued that the fissures had not arisen from thrust, but were due to a slight yielding of the foundations, and he urged that no chain be added, but that a bit of marble be dove-tailed into the vault across the opening, in order that any further movement might be detected by the breaking of this marble. For three years no further sign of disturbance was noticed, but a slight earthquake in 1697 broke a portion of the masonry of the outer face of the dome opposite the fissure across which the marble had been placed. It appears, however, to have been concluded that there was still no danger from thrust, and no new chain was inserted. Cecchini (*Opinione intorno lo Stato della gran Cupola del Duomo di Firenze*, published together with Nelli's *Discorsi*, etc., p. 82) speaks of several cracks in both the inner and the outer shells of the vault, and also in the supporting piers, even down to the ground. But he agrees with Nelli in attributing these to movements of the foundations from which he concludes that no further danger is to be apprehended, and he affirms that the structure is entirely safe.

[2] Cf. Nelli, *op. cit.*, p. 73.

[3] The thrusts of a hemispherical dome are, in some degree, restrained by the binding of its continuous courses of masonry under compression, but this is not enough for security, as experience has shown; and in a polygonal dome, like Brunelleschi's, there is no such binding force, because there are no continuous circles of masonry.

properly considered as an entirely noble and exemplary work of art, however much beauty and impressiveness it may have.

The example set by Brunelleschi was, in point of construction, a pernicious one, and bore fruit of a still more objectionable character in the works of other gifted men less scrupulous than he, and less endowed with mechanical ingenuity, as we shall see farther on.

Though there is nothing whatever of classic Roman character in this great dome, the lantern which crowns it, built from Brunelleschi's design after his death, has classic details curiously mingled with mediæval forms. Its eight piers are adorned with fluted Corinthian pilasters surmounted by an entablature, while the jambs of the openings have engaged columns carrying arches beneath the entablature in ancient Roman fashion. From the entablature rises a low spire with finials set about its base, and flying buttresses, adorned with classic details, are set against the piers. None of the classic details have any true classic character, nor has the ornamental carving, with which the composition is enriched, any particular excellence either of design or execution. But these details are invisible from the ground, and in its general form and proportions the lantern makes an admirable crowning feature of this finest of Renaissance domes.

CHAPTER III

CHURCH ARCHITECTURE OF THE FLORENTINE RENAISSANCE

No other work by Brunelleschi is comparable in merit to the great dome of the cathedral. None of his other opportunities were such as to call forth his best powers, which appear

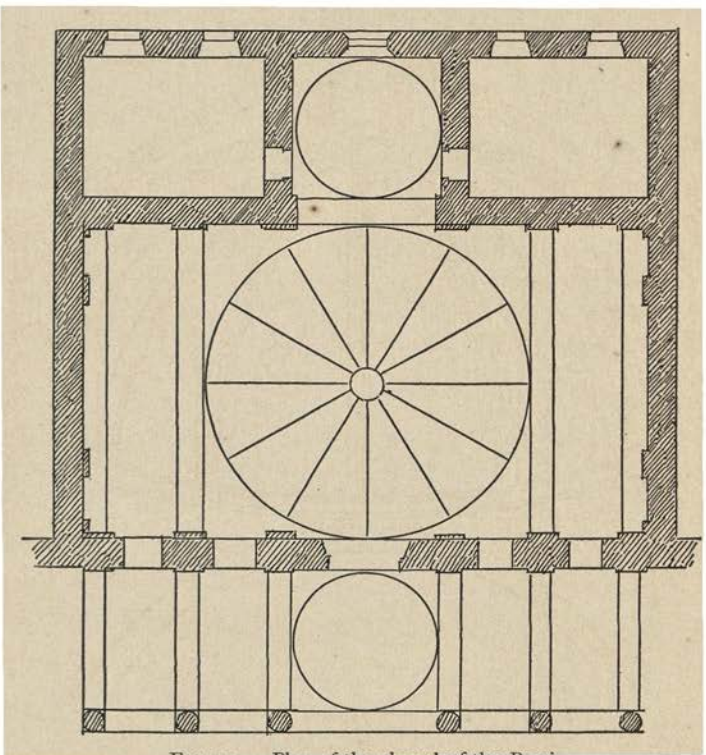


FIG. 10. — Plan of the chapel of the Pazzi.

to have required great magnitude to bring them into full play. In his other works the influence of his Roman studies is more manifest, and his own genius is less apparent. In these other works he revives the use of the orders, and employs them in

modes which for incongruity surpass anything that imperial Roman taste had devised.

The first of these works is the small chapel of the Pazzi in the cloister of Santa Croce. It is a simple rectangle on plan (Fig. 10), with a square sanctuary on the short axis, and a

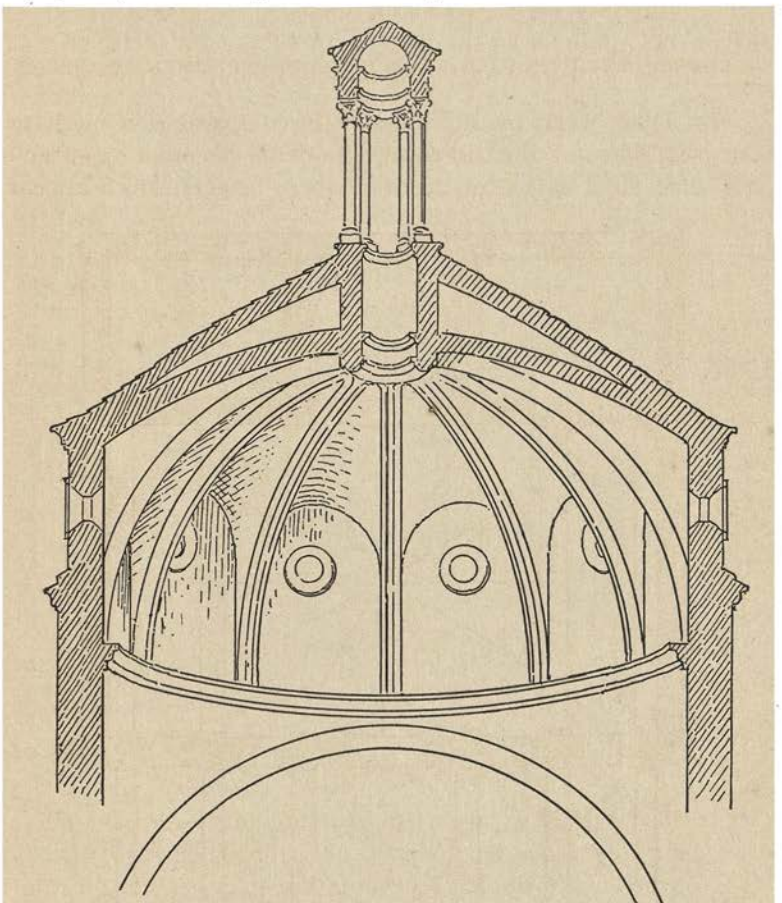


FIG. 11. — Section of vault of the Pazzi chapel.

porch across the front. The central area is covered with a circular vault which by most writers is called a dome, but it is not a dome; it is a vault of essentially Gothic form, like two early Gothic apse vaults joined together (Fig. 11). It rests on pendentives, and is enclosed by a cylindrical drum, which forms

an effective, though not a logical, abutment to its thrusts, and is covered with a low-pitched roof of masonry having a slightly curved outline. Whether this external covering is connected with the vaulting in any way above where it parts from the crowns of the vault cells it is impossible to discover, because there is no way of access to the open space between the two parts. Through a small opening in the outer shell, near its crown, the hand may be thrust into the void, but nothing can

FIG. 12. — Interior of the Pazzi chapel.

be reached. It is a curious form of double vault, and differs fundamentally from the great double dome of the cathedral. The scheme as a whole is structurally inconsistent; for while the inner vault has the concentrated thrusts of Gothic construction, these thrusts are met by the enclosing drum, and not by the isolated abutments that the vault logically calls for. The sanctuary has a small hemispherical dome on pendentives, and the portico is covered with a barrel vault bisected by another small dome on pendentives.

The architectural treatment of the interior (Fig. 12) exhibits

a wide departure from that of any previous type of design. The form of the building is mediæval, being, with exception of the central vault, essentially Byzantine,[1] but the details are classic Roman, and consist of a shallow order of fluted Corinthian pilasters with the entablature at the level of the vaulting imposts. In such a building, however, and used in this way, a classic order is out of place; for an order is a structural system designed for structural use, but the order here has no more structural function than if it were merely painted on the walls. It is used, of course, with a purely ornamental motive, but as ornament it is inappropriate. A proper ornamental treatment of such an interior would be either by marble incrusting, mosaic, or fresco, or else by pilaster strips, or colonnettes, and blind arches, which would break the monotony of the broad wall surfaces without suggesting an architectural system foreign to the character of the building. Such arcading would have an appropriate structural suggestiveness, if not an actual structural use; but a classic order is unsuitable for a building of mediæval character. The mediæval pilaster strip and blind arcade were designed for this use, and they have the further advantage that their proportions may be indefinitely varied to meet varied needs, as the proportions of the classic orders may not. But in their lack of a true sense of structural expression, and in their eagerness to revive the use of classic forms, the designers of the Renaissance failed to consider these things.

A particularly awkward result of this improper use of an order is that the entablature passes through the arch imposts, making an irrational structural combination. This scheme was, however, extensively followed in the subsequent architecture of the Renaissance, but it is a barbarism for which no authority can, I believe, be found in ancient Roman design.[2] The

[1] The term "Byzantine" is often applied loosely to buildings in which only the ornamental details have a Byzantine character. But the primary and distinguishing structural feature of Byzantine architecture is the dome on pendentives. The Byzantine features of the Pazzi are involved with others derived from different systems, but they are very distinct. The central vault, though of Gothic form, is supported on pendentives, and the true dome on pendentives occurs, as we have seen, in the sanctuary and the porch.

[2] The entablature does, however, occur under vaulting in some provincial Roman buildings, as in the Pantheon of Baalbek, where it forms the wall cornice from which the vaulting springs. But this, though not defensible, is less objectionable than the Renaissance scheme of an entablature passing through the imposts of archivolts.

nearest approach to it in Roman art is the entablature block resting on the capital (as in the great hall of the Baths of Caracalla), which was a blundering device of the later Roman architects. The complete entablature running through the impost, as in the chapel of the Pazzi, sometimes, indeed, occurs in the early churches of Rome and elsewhere,[1] as a result of unsettled conditions of design, while the architects were strug-

FIG. 13. — Façade of the Pazzi chapel.

gling with the traditional use of the entablature and the introduction of the arch sprung from the columns. But after the admirable logic of the mediæval arched systems of construction had been reached it appears strange that any designer should go back to this irrational combination.

In the portico (Fig. 13) the incongruities of design are of a still graver nature because they involve weakness of construction. The order of the interior is, as we have just seen, but a

[1] As in the arch of the apse of St. Paul outside the wall at Rome, and in the Baptistery of Florence.

simulated order, and has no structural function, but in the portico a real Corinthian order is made to carry the barrel vault and dome above mentioned, and an attic wall which encloses the vaulting. But a classic order was never intended for such use, and cannot properly perform it. Such an order is adapted only to the support of crushing weight, and has no power of resistance to the thrusts of vaulting. The weight of the attic wall tends, indeed, in some measure to neutralize the force of the vault thrust, but this is not enough to render the structure secure, and unless the order were effectively steadied by some extraneous means the attic load would constitute a source of danger, as with any disturbance of its equilibrium by thrust its weight would hasten the overthrow of the system. How it is actually maintained is not apparent. No tie rods are visible beneath the vault, such as are common in Italian vaulted structures, which are rarely buttressed in an effective manner. Ties or clamps may, however, be concealed within the attic, though they would be less effective so placed. But in whatever way the system is held together, it is bad architecture, because the parts have no proper adaptation to their functions.

The ornamental treatment of the attic wall is worthy of notice. The surface is divided into panels by diminutive pilasters, and these panels are subdivided by mouldings in a manner which recalls the treatment of the attic of the Baptistery. The coupling of the pilasters was an innovation in the use of classic members, but it enabled the architect to avoid unpleasant proportions in these details. Single pilasters of the same magnitude would be too slender for the deep entablature over them, or to harmonize with the great Corinthian order below, while wider single ones would be stumpy and inelegant. The pair give good proportion in the total composition, while each pilaster is well proportioned in itself. Another noticeable point is the manner in which the central archivolt and the archivolts spanning the ends of the porch intersect the pilasters at the springing. This could not be avoided, because the pilasters cover the whole space on the entablature over the capitals of the columns, and leave no place for the archivolts. Thus the mediæval principle of interpenetration is carried over into the neo-classic design.

It should be observed that the details of this attic are

wrought in stucco, so that we have with the beginning of the Renaissance a revival of a common ancient Roman practice of architectural deceit. The great order, however, is necessarily of stone, and its general proportions are good, though the details are poor in design, and coarse in execution.[1]

The façade of the Pazzi has been considered as showing noteworthy originality of design. But there are older buildings

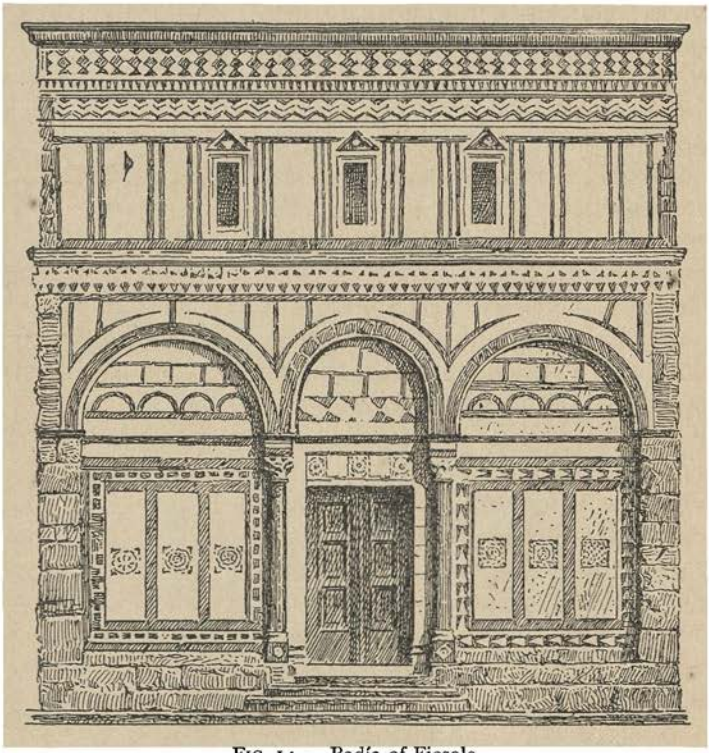


FIG. 14. — Badía of Fiesole.

in the neighbourhood to which it bears enough likeness to suggest its derivation from them. The façade of the Badía of Fiesole (Fig. 14) is one of these. By substituting a free-standing colonnade for the blind arcade of this front, and breaking its entablature and attic wall with an arch, we should get the leading features of the Pazzi front. Sant' Jacopo Soprarno, with

[1] The character of these details will be discussed in the chapter on the carved ornament of the Renaissance.

its attic surmounting an open portico having an arcade on Corinthian columns, is also strongly suggestive of the same scheme. The features that are peculiar to the Pazzi, the arch breaking the entablature, the barrel vault sprung from the order, and the dome bisecting this vault, do little credit to the architect as a consistent designer.

Two more important examples of church architecture in Florence, which appear to be mainly by Brunelleschi, are San Lorenzo and Santo Spirito. What part Brunelleschi had in the design of San Lorenzo is not perfectly clear,[1] but the main scheme was probably his, though the work was not completed until after his death. In the old sacristy of this church, which appears to be the part that was first built, the interior design of the Pazzi chapel is reproduced with some modifications of proportions and details, including the celled vault on a system of ribs, resting on pendentives. The church itself exhibits a frank return to primitive basilican forms and methods of construction, though with modifications and some additions. The nave has a flat wooden ceiling, but the aisles are covered with domical vaulting on salient transverse ribs, and over the crossing is a hemispherical dome on pendentives. In the arcades, which are carried on Corinthian columns like those of the portico of the Pazzi, the entablature blocks of late Roman design are reproduced in the impost (Fig. 15). The revival of this meaningless feature shows again how little impression the logic of mediæval art had made on the Italian mind, and what lack of discrimination in their borrowings from the antique the designers of the Renaissance often show. Whatever features the Roman models displayed were looked upon as authoritative, and copied without

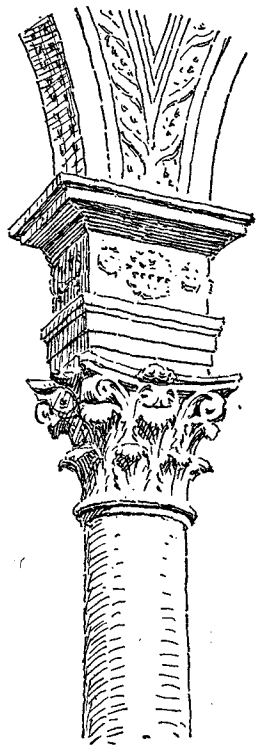


FIG. 15. — Impost of San Lorenzo.

[1] Cf. Vasari, *Opere*, vol. 2, p. 368 *et seq.*, and Milanesi's foot-note, p. 370.

question; and the frequency with which this superfluous detail was reproduced in the subsequent architecture of the Renaissance has given it wide acceptance in more recent times. Notwithstanding the intention of the designer to revive the ancient style, mediæval features are conspicuous in San Lorenzo, and something of the mediæval logic of structural adjustment occurs in some details. Not only is the dome over the crossing supported on pendentives, which, in their developed form, are mediæval features and thus foreign to classic Roman design, but the piers sustaining this dome are compound, and consist of members of different proportions adjusted in the organic mediæval manner. The members which take part in the support of the aisle arcades are necessarily short, while those which carry the great pendentive arches are lengthened to reach the higher level from which those arches spring. But all of these members have the form of fluted Corinthian pilasters (Fig. 16). Thus were classic members used in ways that are foreign to classic principles, and their proportions altered with as much disregard for the rules of Vitruvius as the mediæval builders had shown.

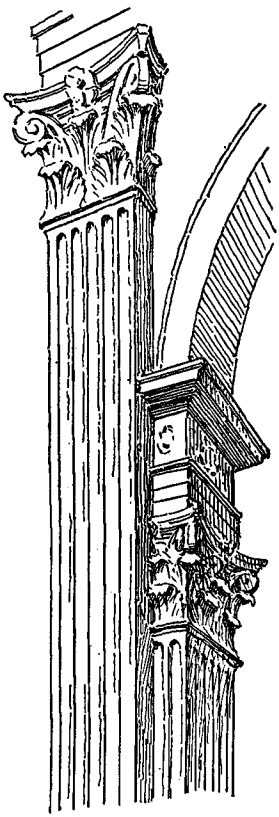


FIG. 16. — Crossing pier of San Lorenzo.

The church of Santo Spirito, built after the architect's death, closely resembles San Lorenzo in its architectural character, though it is larger in scale. The entablature blocks occur in the arcades here also, but instead of a dome over the crossing as in San Lorenzo, there is a circular celled vault on converging ribs, like the vault of the Pazzi chapel. The interior is spacious and finely proportioned, but it presents no features that afford further illustration of the progress of neo-classic design.

The retrospective movement was carried further by the

Florentine scholar and architect Leon-Batista Alberti, who, says Milizia, is justly regarded as one of the principal restorers of the architecture of antiquity.[1] His chief designs in church architecture are found in Santa Maria Novella of Florence, in San Francesco of Rimini, and in Sant' Andrea of Mantua. The first two of these are mediæval structures in which Alberti's work is confined to the remodelling of the exteriors, but the last was wholly designed by him, though the work was not completed within his lifetime, and the dome over the crossing is the work of another architect of a later time.

How much Alberti did to the façade of Santa Maria Novella, the part of the building to which his work is confined is not very clear. Vasari speaks vaguely as if the whole front were by him,[2] but from a foot-note by Milanesi it would appear that he merely completed a part which had been left unfinished by an older architect, and the work remaining by the older architect is said to include all below the first cornice except the central portal, which is attributed to Alberti. Milizia says[3] that although it is common to attribute the whole façade to Alberti, it has too much Gothic character to be entirely by him, and that therefore a part of it may, with more probability of correctness, be assigned to Giovanni Bettini, an older architect; but he adds that the central portal is undoubtedly by Alberti.

An examination of the monument itself would seem to show that the part below the first entablature, with exception of the great Corinthian columns and the central portal, is mediæval work (Fig. 17). The whole Corinthian order, with the angle pilasters and the pedestals on which the order is raised, look like neo-classic work, and are probably by Alberti. This order is wholly different in character from mediæval design, and quite foreign to the mixture of Pisan Romanesque and Italian Gothic features of the distinctly mediæval part with which it is associated. The columns of the order are, however, of mediæval proportions, being eleven or twelve diameters in height, and they are built of small stones in a common mediæval manner. But these proportions were necessitated by the older work to which the order had to be adjusted, and the small masonry of which they are composed makes them harmonize with the older

[1] *Op. cit.*, vol. 1, p. 200. [2] *Op. cit.*, vol. 2, p. 541.
[3] *Op. cit.*, vol. 1, p. 201.

parts. The central portal has a round arch on fluted Corinthian pilasters framing in a deeply recessed rectangular opening with a classic lintel and jamb mouldings. It is noticeable that the arch does not spring directly from the capitals of the pilasters, but that the entablature block is interposed, as in Brunelleschi's arcades of San Lorenzo and Santo Spirito. Milizia, speaking

FIG. 17. — Façade of Santa Maria Novella.

of this feature in another work by the same architect, says: "In these arcades Alberti observed a rule always followed in the good ancient times, but since universally disregarded. The arches are not sprung from the columns, because this would be incorrect, but architraves [*sic*] are interposed. It would now be ridiculous to inculcate the importance of this rule, which is familiar to children."[1] This, like other notions to which the

[1] *Op. cit.*, vol. I, p. 201.

Renaissance gave currency, is a mistake. In inserting the entablature block at the arch impost Alberti did not follow a rule always observed in the ancient times. This feature is uncommon in ancient Roman art. It was, as before remarked, introduced by the late Roman architects, who, being accustomed to the use of the entablature over the column in the trabeate system which they had borrowed from the Greeks, did not see, when they began to spring arches from columns, that the entablature had no longer any reason for existence. The radical nature of the change wrought in architecture by the introduction of the arch was never grasped by the imperial Roman designers. First framing the arch with an order, thus uniting two contradictory systems, they afterwards, when, as in the basilica of Maxentius, springing the arches of vaulting from columns, thought that the rules required them to crown these columns with bits of entablature.

This façade appears to have been originally designed in the Pisan Romanesque style, with a tall, shallow blind arcade on pilaster-strips reaching across the ground story. But the Romanesque character was modified in some details, the portals having pointed arches, pointed arched niches sheltering tombs being ranged in the intervals between the pilaster-strips. How far the upper part of this façade had been left incomplete until Alberti took it in hand we have no means of knowing; but no mediæval features occur in it as it now stands, except the circular opening in the central compartment. Upon this front, then, Alberti appears to have ingrafted the great Corinthian order, placing a wide pilaster paired with a column on each angle, breaking the entablature into ressauts to cover the columns, which have nothing else to support, and replacing the central portal with the existing one in the revived classic style. The preservation of the greater part of the mediæval work in the ground story made it impossible to get in more than the four columns in the great order, and these are necessarily spaced in an unclassic way, with a narrow interval in the middle and very wide ones on either side. To the upper compartment the architect has given an order of pilasters surmounted by a classic pediment, and flanked by screen walls over the aisle compartments in the form of gigantic reversed consoles, apparently the first of these features which became common thereafter in

Renaissance fronts. The pilasters of this order are again four in number, and are set in pairs on either side of the circular opening, the width of this opening making it impossible to space them otherwise. We thus have in the clerestory compartment of this façade a forced arrangement of pilasters, which may have led to that alternation of wide and narrow intervals that became very common in the subsequent architecture of the Renaissance. The attic over the ground story, which extends across the entire front and answers to nothing in the interior of the building, is presumably also by Alberti.

The front of Santa Maria Novella is notable as the first mediæval one which was worked over by a Renaissance architect, and as a whole, notwithstanding that it is a patchwork of incongruous elements, it exhibits a remarkable unity of effect. The merit of Alberti's work here consists in its quietness. The applied orders are in low relief, their details are unobtrusive, and the mellowing effect of age on the beautiful marble incrusting has fused the whole front into an exquisite colour harmony that is almost unmatched elsewhere.

Very different is the west front of San Francesco of Rimini, in which Alberti has introduced a Roman composition without any admixture of mediæval elements. It is substantially a reproduction of the arch of Septimius Severus. The details are in higher relief here in conformity with the ancient model, and the ressauts of the entablature become correspondingly more salient. A ressaut of this kind is another feature of Roman art which has no justification on structural grounds, and to which there is nothing analogous in any reasonable style of architecture. To set a useless column in advance of an entablature and then make a ressaut to cover it, is irrational.

Alberti's capital work in church architecture is Sant' Andrea of Mantua, begun in 1472, the year of the architect's death, in which he made a frank return to Roman models in the structural forms of the whole edifice, as well as in the ornamental details —a thing that was rarely done by the architects of the Renaissance. The plan (Fig. 18) is, however, cruciform, and the dome over the crossing is supported in the Byzantine manner on pendentives. The nave (Plate II) has a barrel vault on massive square piers connected by arches, the intervals between the piers forming side chapels, and the lower part of each pier having a small

square chamber within it, so that it does not look as massive on the plan as it does in elevation. The east end has the strictly Roman form of a semicircular apse with a half-dome vault. The details of the interior consist of a single order of pilasters, on high pedestals, set on the angles of the piers, and of rich Roman coffering on the surfaces of the vaulting. The piers closely resemble those of the so-called arch of the Silversmiths in Rome, which it is not unlikely that Alberti had in mind in designing them, inasmuch as he was a devoted student of Roman architectural antiquities. This interior is, I think, one of the very finest that the Renaissance produced. The justness of its proportions, the simplicity of the structural scheme, and the quietness of the ornamental details are all admirable. With the given elements it is hard to see how a better composition could be made; but the incongruity between the structural and ornamental systems, the entirely superficial use of the order, and its unfitness as ornament where it has no structural meaning, are fundamental defects of this as of most other Renaissance designs. The scheme of St. Andrea foreshadows that of St. Peter's, and was undoubtedly in the mind of Bramante when he was preparing his colossal project for Pope Julius II.

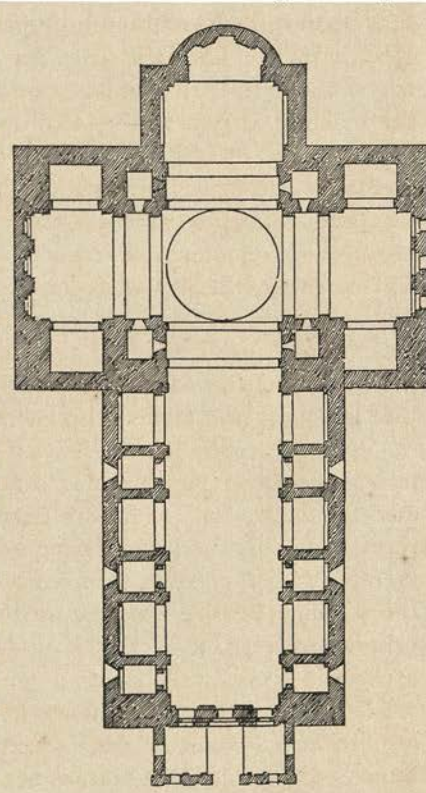


FIG. 18. — Sant' Andrea, Mantua.

The west front of this church (Fig. 19) is again an adaptation of a Roman triumphal arch design. It is, in fact, as the plan (Fig. 18) shows, a great porch set against the true front,

and has no correspondence in its parts with those of the building itself. In outline it is an unbroken rectangle crowned with a pediment. A very shallow order of Corinthian pilasters divides it into a wide central bay and two narrow ones. A great arch over a smaller order opens into a barrel-vaulted recess, on the three sides of which the entablature is returned. A rectangular portal, with square jambs and a cornice, opens into the nave, and

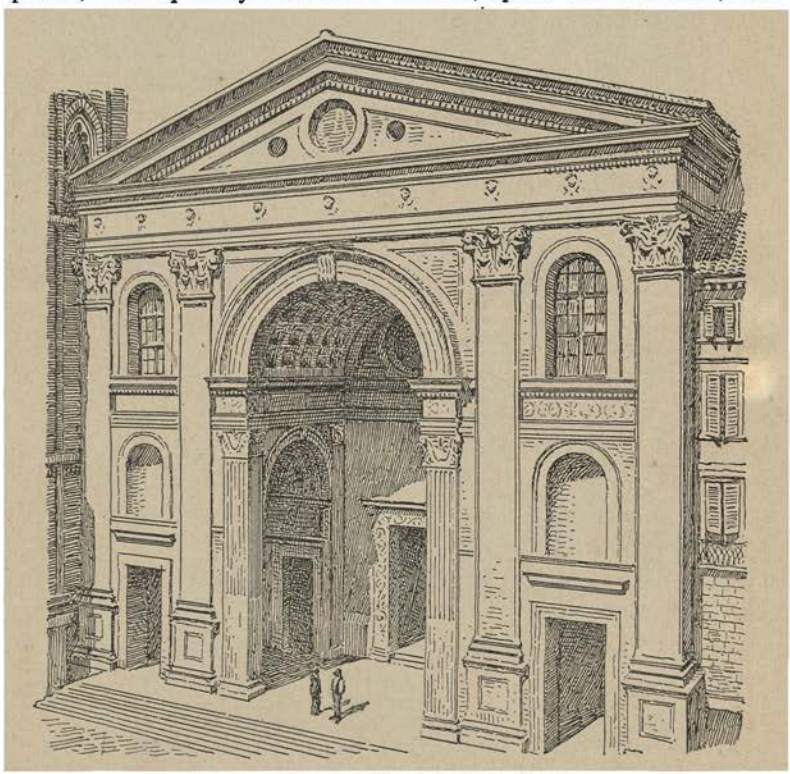


FIG. 19. — Façade of Sant' Andrea, Mantua.

an arch reaching to the entablature opens into the lateral compartment on each side, and each of these compartments has a barrel vault with its axis perpendicular to that of the great central one. The entablature of the small order is carried across the front of each lateral bay, dividing it into two stages, and the great order rises through it, embracing both stages, and forming an early instance of the so-called colossal order that became common in the later Renaissance. The great order is raised on

pedestals, and both pedestals and pilasters of this order are panelled, while the small order rests directly on the pavement and its pilasters are fluted. It is noticeable that the design of the central arch is almost exactly like that of the central portal of Santa Maria Novella in Florence, the smaller entablature being broken into shallow ressauts over the pilasters, giving the same character to the imposts. The front as a whole has the

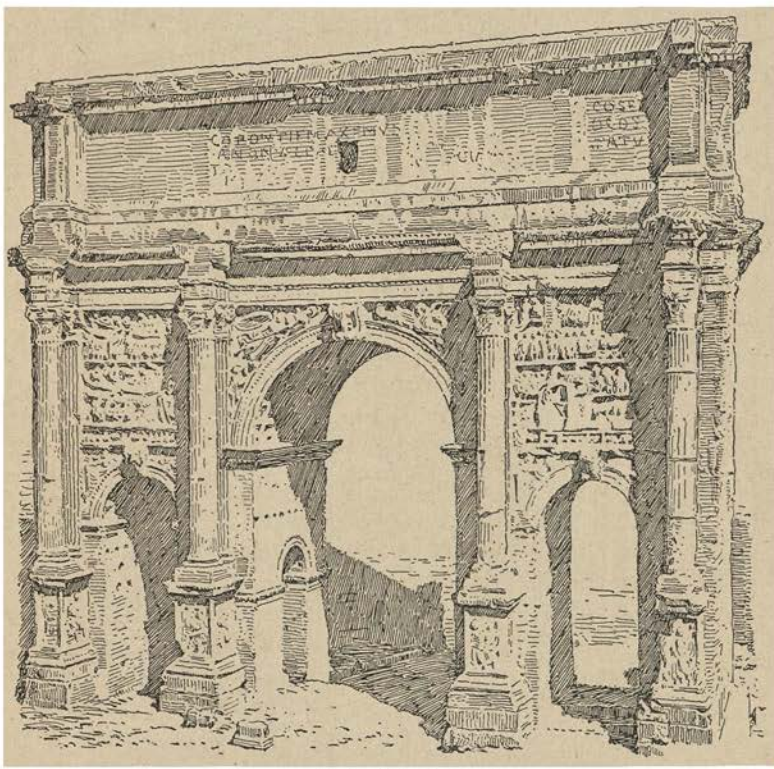


FIG. 20. — Arch of Septimius Severus.

quiet and refined character that distinguishes this architect's work in general.

That Alberti derived all of these façades, and especially that of St. Andrea, from the Roman triumphal arch scheme a direct comparison will show; and the arch of Septimius Severus (Fig. 20) may, I think, be taken as the model that he had chiefly in mind. In Santa Maria Novella the mediæval scheme upon

which he had to fit his work prevented such a disposition of the columns, and such general proportions as this model exhibits. He was obliged to make the lateral intercolumniations much wider than the central one, and to make the whole rectangle of the composition more oblong than that of the ancient monument; but in most other points he has followed the arch of Septimius Severus closely. As in the Roman design the entablature crowns the wall instead of the order, so that ressauts have to be formed to cover the columns. The insertion of the angle pilaster is a departure from the Roman scheme, and the placing of the stumpy pilaster of the attic over the great pilaster, instead of on the column, is another point of difference. But the general scheme of the ground story and attic will be seen to resemble that of the Roman design about as closely as the mediæval edifice on which it is ingrafted would allow. In San Francesco at Rimini the architect had a freer hand, and the order is treated in closer conformity with the ancient model as to the spacing of the columns and other details. The angles are treated precisely as they are in the arch of Septimius Severus, the pilasters being omitted, and the entablature at each end extending beyond the ressaut. The attic is omitted here, and the unfinished upper part of the façade is necessarily of different design.

In St. Andrea at Mantua the use of pilasters instead of columns, and the absence of ressauts in the great order, as well as the substitution of a pediment for the attic, make a great difference in the general character of the design; and yet the triumphal arch idea is even more strongly marked in this case, because it is not confined to the mere façade but extends to the form of the whole porch. The great barrel-vaulted recess is an exact reproduction of the central passage-way of the Roman arch, and so are the lesser arches which open out of this recess on either side.

The triumphal arch idea applied to church fronts appears to be peculiar to Alberti. Most other architects among his contemporaries and immediate successors limit themselves to an application of the orders variously proportioned and disposed. In some cases the mediæval scheme of buttresses dividing the front into bays is retained, and this scheme is enriched with pilasters, or columns, and mouldings of classic profiling, as in the façade of the Duomo of Pienza by the Florentine

architect Rossellino. In the later Renaissance façades, as we shall see, there is frequently no organic division of the whole front into bays by continuous members embracing its whole height, but superimposed pilasters and entablatures are variously disposed upon the surface without any suggestion, in the composition as a whole, of the triumphal arch idea (as in Vignola's fronts, Figs. 49 and 50). But in the characteristic Palladian scheme an organic division is formed by a great order of columns reaching to the top of the nave compartment, and overlapping a smaller order of pilasters extending across the whole front as in Figure 54.

The foregoing examples are enough to illustrate the character of Florentine church architecture, and that which was wrought elsewhere under Florentine influence, in the fifteenth century. These examples show us that the designers, while ostensibly striving to revive the antique forms, were in reality working more or less unconsciously on a foundation of mediæval ideas from which they could not free themselves. The inconsistencies of their work are largely due to the irreconcilable nature of the elements which they sought to unite, not appreciating the logic of mediæval art on the one hand, nor the true principles of the best art of antiquity on the other. The classic orders were entirely unsuited to the buildings to which they affixed them. They properly belong to a very different type of architecture which had been developed by the Greeks in ancient times, and the Greeks alone have used them with propriety. The Romans misapplied and deformed them, and the Italians of the Renaissance now surpassed the Romans in their misapplication and distortion. Many further illustrations of this will appear as we go on.

Early in the sixteenth century this architecture began to assume another phase in which the mediæval elements became less conspicuous, though they were not eliminated, and the imperial Roman features were more rigorously reproduced, yet they were never used with strict conformity to ancient models. This phase of the art was inaugurated by the architect Bramante after his settlement in Rome. We shall consider the Roman work of Bramante, in the following chapter.

CHAPTER IV

THE DOME OF ST. PETER'S

WHEN in the year 1503 Pope Julius II came to the papal chair, the architect Bramante had recently settled in Rome. Born in Urbino, he had spent his early manhood in the North of Italy, where he had come under the influence of the Florentine architect Alberti at Mantua, and of the early Renaissance masters at Milan and elsewhere. Under these influences he had acquired a style that was peculiar to the North at that time. But since coming to Rome he had begun to form a new manner under the more direct influence of the Roman antique,[1] and he soon developed a style in which the ancient Roman forms were reproduced with stricter conformity to the ancient usage, and with smaller admixture of mediæval features than had before prevailed.

An early work in Rome in which he exhibits this more rigorous classic tendency is the small building known as the Tempietto in the cloister of San Pietro in Montorio. It consists of a circular cella with shallow pilasters, surrounded by a colonnade of the Roman Doric order, and surmounted by a hemispherical dome on a high drum. It is thus in form like a Roman temple of Vesta with its dome raised out of the abutting drum and set upon its top without abutment. A glance at Figures 21 and 22, a part section and part elevation of the temple of Vesta at Tivoli, and an elevation of the Tempietto, respectively,[2] will show how great a change Bramante made in the adjustment of the vault to the supporting drum, while it will show also the essential likeness in other points between the two monuments. In Figure 21 it will be seen that the vault is well abutted by the roof of the portico, and by stepped rings of masonry

[1] Vasari, *op. cit.*, vol. 4, p. 152, and Milizia, vol. 1, p. 214.

[2] Figures 21 and 22 are taken from Serlio, *D' Architettura*, book 3, Venice, 1560, pp. 25 and 40.

over the haunch, while in Figure 22 the drum is raised high above the encircling portico, and the vault is sprung from its top, and has no abutting rings. The architect appears to have realized that such a scheme would be unsafe on a large scale, for in the one which he prepared for the dome of St. Peter's he took care, as we shall see, to provide strong abutment.

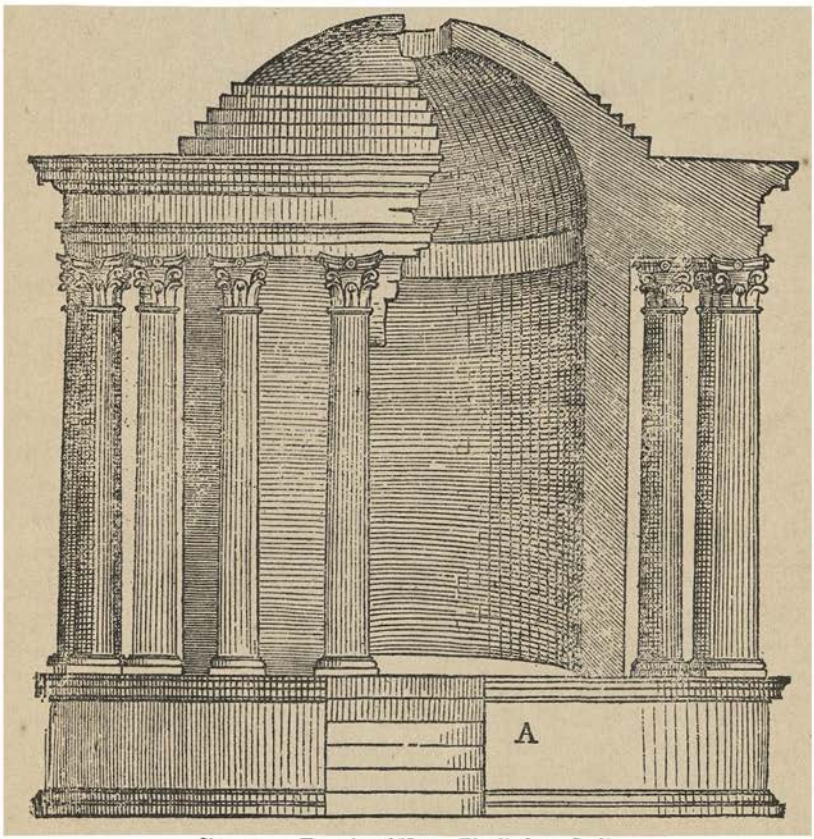


FIG. 21. — Temple of Vesta, Tivoli, from Serlio.

The Tempietto is but a modified copy of an ancient model, and in no true sense an original design. The changes wrought by the copyist are not of a creative kind consistent with true principles of building. The pilasters, and the balustrade with which the order of the portico is crowned, are superfluous, and the work as a whole shows little of Bramante's real ability as an architect. Such merit as it has is primarily due to the ancient

model which he would have done better to have reproduced more exactly.

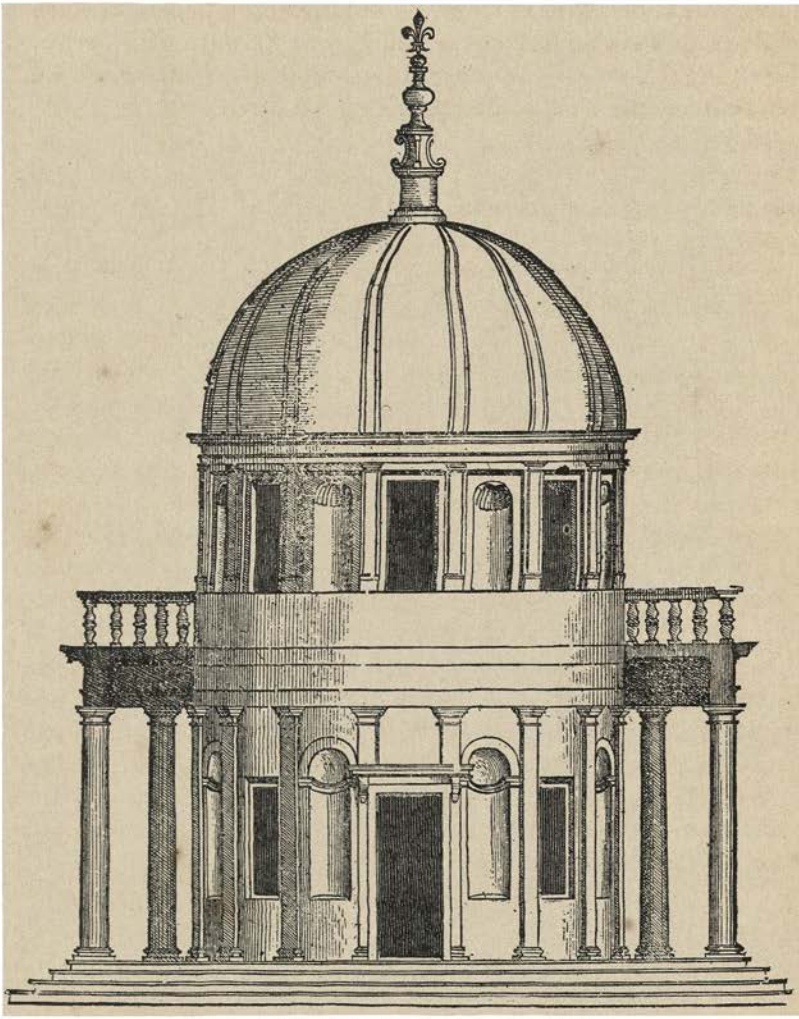


FIG. 22.— San Pietro in Montorio, from Serlio.

But Bramante manifested his real powers in his project for the great church of St. Peter, his capital work, which, however, was never carried to completion. It is well known how Pope Julius II had conceived the idea of erecting a vast tomb for himself, and had employed Michael Angelo to prepare the

design. We are told by Vasari[1] that the project submitted by this great artist so pleased the Pope that he determined to rebuild the church of St. Peter in order to make it more worthy to enshrine so magnificent a monument. Under Pope Nicholas V, half a century before, the grand old basilica, that had stood since the time of Constantine, had been partially demolished, and a new edifice on a larger scale begun by the Florentine architect, Rossellino. This work had not progressed very far when it was suspended on the death of this Pope, and operations had not been resumed until now, when Pope Julius resolved to demolish Rossellino's beginning along with what remained of the old structure, and to make a fresh start with a still grander scheme, which was prepared by Bramante, who began the new work in the year 1506.

There is much uncertainty as to the exact nature of Bramante's design for the building as a whole. No authentic drawings embodying the definitive project are known to exist, and in the monument itself Bramante did not go far enough to show his whole intention. Even what he actually did cannot be wholly made out with clearness, because so many other hands were employed after his death. The exact form of his plan is uncertain, though there appears little question that it was to be in the form of the Greek cross with towers set in the external angles, and it is certain that a vast dome was to rise over the crossing.[2] The work, though considerably advanced, was not nearly completed when, in the year 1514, the master died. He appears to have built the great piers for the support of the dome, with their connecting arches and pendentives, but not to have begun the dome itself.

The scheme was to be a colossal one, and the dome was to

[1] *Op. cit.*, vol. 7, p. 163.

[2] Serlio, the architect (a younger contemporary of Bramante), *op. cit.*, p. 33, tells us that Bramante, at his death, left no perfect model of the whole edifice, and that several ingenious persons endeavoured to carry out the design, among whom were Raphael and Peruzzi, whose plans he reproduces. That ascribed to Raphael has a long nave, while that said to be by Peruzzi has the form of the Greek cross with round apses and a square tower in each external angle. The whole question of Bramante's scheme, and of the successive transformations to which the design for the edifice was subjected before its final completion, is fully discussed in the work of Baron H. von Geymüller, *Die ursprünglichen Entwürf für Sanct Peter in Rom*, Wein and Paris, 1875–1880.

be its main feature. We may presume that Bramante naturally shared the universal feeling of admiration for Brunelleschi's

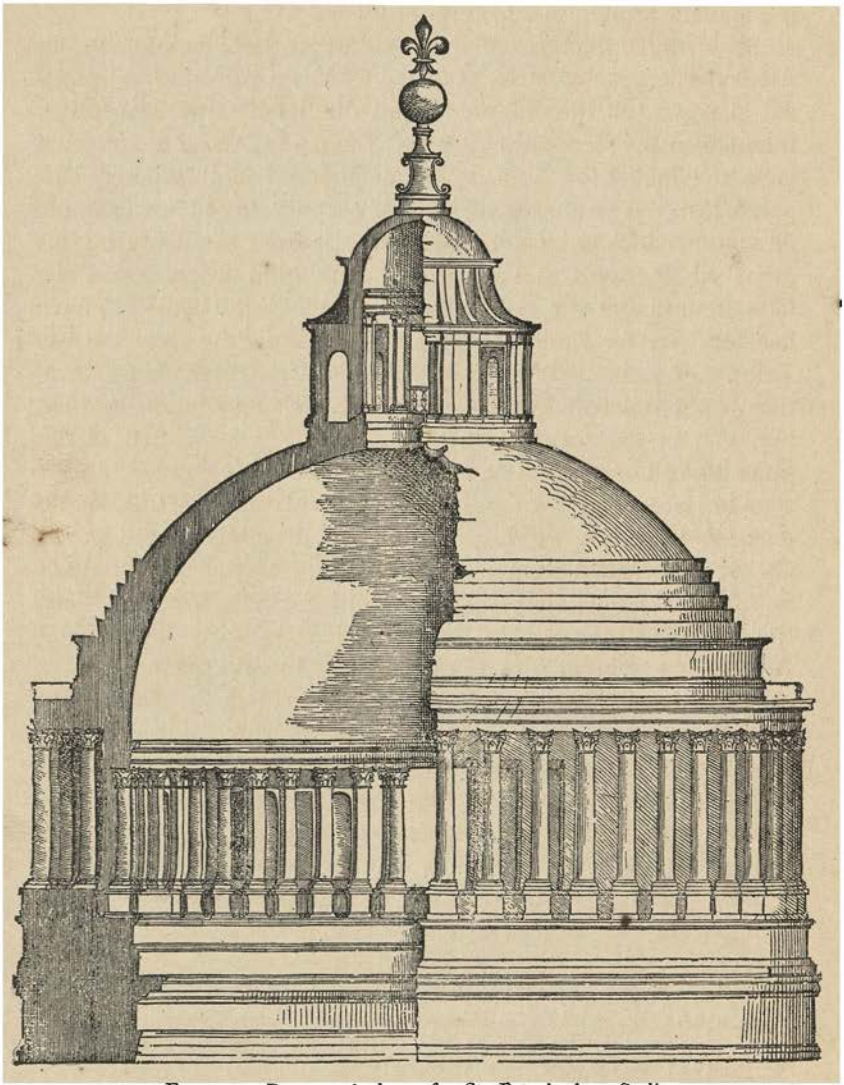


FIG. 23. — Bramante's dome for St. Peter's, from Serlio.

dome, and that he wished to rival its imposing character. But his ardent and intelligent study of the monuments of Roman antiquity had given him a better appreciation of their superior

structural merits, and in his project for the great dome he had sought to adhere more closely than Brunelleschi had done to the ancient principles and ancient forms.

In seeking guidance from the antique two monuments in particular appear to have appealed to him as offering appropriate suggestions, the Pantheon and the Basilica of Maxentius, then called the Temple of Peace. The first of these monuments gave the model for a mighty hemispherical vault securely suspended over a vast area, while the second offered an example of a stupendous system of piers and arches. In maturing his great scheme with these models before him, he conceived the idea of uniting their respective sublimities, and is said to have boasted that he would set the Pantheon upon the arches of the Temple of Peace. While it is probable that the majestic elevation of the dome of Florence haunted his imagination, and led him to feel that he must lift his dome high, he wished, at the same time, to give the design a more classic character, and a sounder structural form. In striving to accomplish this double purpose Bramante produced a scheme for an elevated dome of almost thoroughly Roman character, and at the same time of imposing external effect. The architect Serlio gives an illustration [1] (Fig. 23) of this project which is highly instructive.[2] A comparison of it with the scheme of the Pantheon shows a close likeness in essential forms and adjustments. The points of difference are mainly such as Bramante's desire to make his dome externally conspicuous would require. In the Pantheon (Fig. 24) the dome springs from within the massive drum at a level far below the external cornice, so that the wall above the springing forms a solid and powerful abutment, reaching almost to the haunch of the vault. Above this a stepped mass of masonry, diminishing in thickness as it rises, is carried well over the haunch, effectively overcoming any tendency to yield to the force of thrust. A Corinthian order, surmounted by an attic, is carried around the wall of the interior,[3] while the wall on the outside is plain.

[1] *Op. cit.*, bk. 3, p. 37.

[2] Serlio does not state on what authority this illustration is based, but there appears no reason to question its correctness. Its authenticity is discussed by Baron von Geymüller (*op. cit.*, p. 240 *et seq.*), who accepts it as genuine.

[3] The alterations that have been made at different times since the original com-

In Bramante's project every essential feature of this ancient monument is reproduced, but with modifications which give a different aspect to the design as a whole, but do not constitute any such radical departure from the principles embodied in the Pantheon as those wrought by Brunelleschi in adapting the scheme of the Baptistery to that of the dome of the cathedral of Florence. In order to secure greater elevation for external

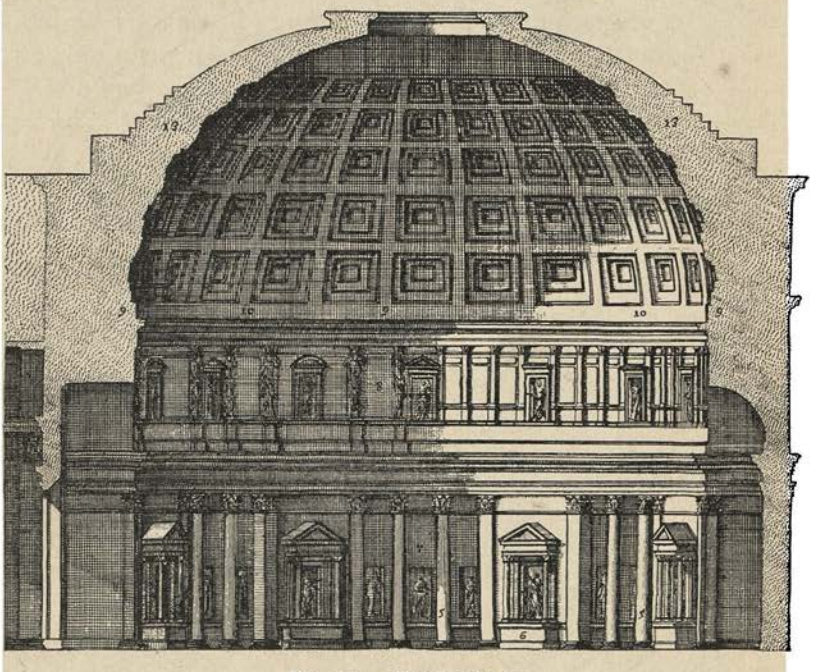


FIG. 24. — The Pantheon.

effect, the architect has raised the springing level of the dome considerably, though he has still kept it below the top of the drum. The drum itself is of great thickness, and forms a strong continuous abutment at the springing, and the haunch of the vault is loaded with steps of masonry as in the Pantheon, though not quite so heavily. The lower half of the drum is a solid wall resting on the pendentives, while the upper part, which is less than half as thick (Fig. 25), is pierced with eight

pletion of this interior are of no concern here. The arrangement was practically the same in Bramante's time as it is now.

wide openings, and its inner and outer faces are each adorned with an order of pilasters alternating with free-standing columns in the intervals. The upper wall stands on the inner circumference of the massive lower ring, while an encircling order of Corinthian columns is ranged on its outer circumfer-

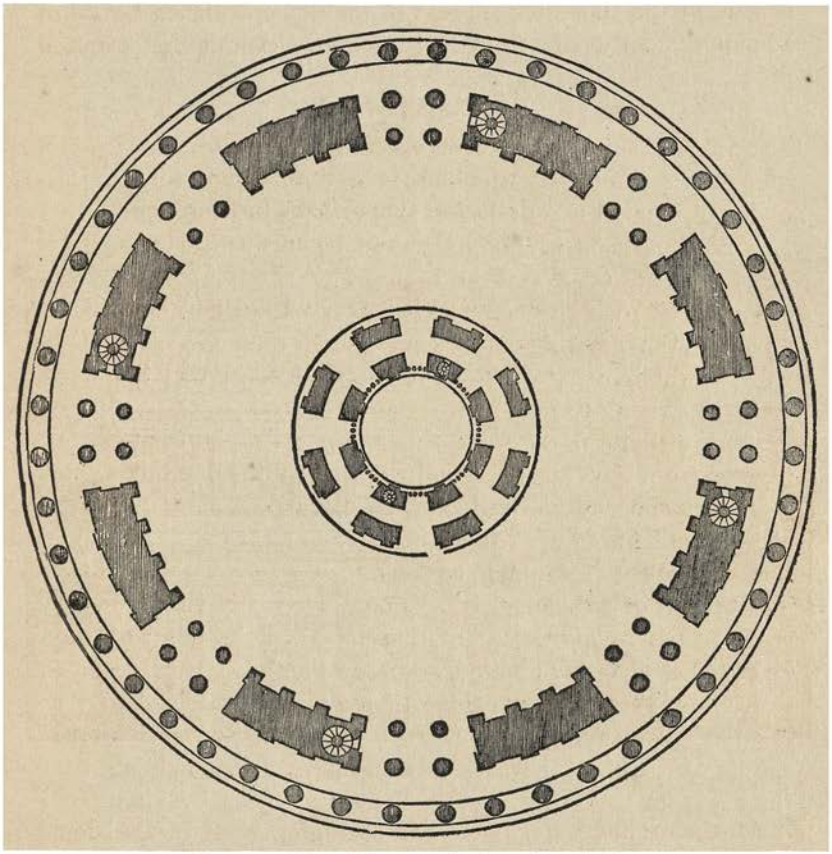


FIG. 25. — Plan of Bramante's dome, from Serlio.

ence, and gives an effect of lightness and elegance to the exterior, which, together with the lantern at the crown of the dome, goes far to disguise the real likeness of the whole to the Pantheon scheme.

In these changes and additions Bramante was governed by a clear understanding of the exigencies of his project. He was obliged to raise the internal order from the place on the ground

level which it occupies in the Pantheon, to the upper part of the drum, in order to provide a solid foundation resting on the pendentives; and this compelled him to eliminate the attic story of the Pantheon scheme. The most radical change was that of substituting the open colonnade for the solid wall on the outside of the drum. It is doubtful, I think, whether the drum thus lightened would have had enough strength to withstand the enormous thrusts of such a dome.

Like the dome of the Pantheon, Bramante's dome was to be hemispherical and to have an opening at its crown. Over this he was to set the lantern which in outline recalls that of Brunelleschi, though it is of lower proportions, in keeping with the less elevated form of his dome, and has a small hemispherical dome instead of a conical roof. The shape of the lantern accords well with the composition as a whole, and contributes much to the aspiring expression which was now demanded, without wholly contradicting the classical spirit that the architect was striving to maintain.

The structural merit of this scheme lies in what it has derived from the forms and adjustments of the Pantheon. Its weakness consists in the increased elevation, lifting the dome away from its abutment to such an extent that it may be questioned whether it could have been made safe without chains. The thrusts of a hemispherical dome are vastly more powerful than those of a vault of pointed outline, like the dome of Florence, but if properly abutted, as in the Pantheon,[1] it is perfectly safe, and makes a better ceiling than a pointed vault. In reducing the efficiency of his abutment by raising the springing of the dome so high, the architect ought to have diminished the force of its thrust in a corresponding degree by giving it a

[1] Some writers have supposed (cf. Middleton, *Ancient Rome*, Edinburgh, 1885, pp. 338–339) that the dome of the Pantheon is entirely of concrete, and without thrusts. We have no means of knowing its exact internal character, but there is reason to believe that it has some sort of an embedded skeleton of ribs and arches, with concrete filling the intervals. But if it were wholly of concrete, as Middleton affirms, it would not be safe without abutment; for, even supposing that a concrete vault may be entirely free from thrust in a state of integrity, there is always a chance of ruptures arising from unequal settlement, which might at once create powerful thrusts. However this may be, the fact is that the builders of the Pantheon took care to fortify it with enormous abutment, which would seem to show that they did not consider it free from thrust.

pointed form. This would have made it more safe, but it would have been inconsistent with the classic Roman models to which he was striving to conform.

As for Bramante's intended architectural treatment of the rest of the building we have, as before remarked, no precise information. It appears, however, most probable that he meant to cover the arms of the cross with barrel vaulting on massive square piers and arches, with a single order of pilasters such as Alberti had used in St. Andrea at Mantua, and such as Michael Angelo actually employed, though in a way peculiar to himself, and probably unlike that in which Bramante would have done it. For Bramante would, I think, have followed Alberti's example in raising the order on pedestals — the great scale of St. Peter's especially calling for such treatment. Bramante would have realized that a single order large enough to rest directly on the pavement and allow the entablature to pass over the crowns of the arches of the great arcades, would dwarf the apparent scale of the whole interior, as Michael Angelo's order actually does. But whatever his intention was as to these details, Bramante died before they could be carried out, and we are left in the dark as to what the church as a whole would have been had he lived to complete it.

To the work of his numerous successors prior to the appointment of Michael Angelo, we need give no attention because their labours did not materially affect the final result. Their work was largely on paper only, and the building as it now exists is substantially Michael Angelo's design, based on that of Bramante, but with extensive, and damaging, additions by subsequent architects.

Michael Angelo at the time of his appointment as architect, in the year 1546, was seventy-two years of age. He professed great respect for the original scheme of Bramante, yet he radically changed the form and adjustment of its main feature, the dome. In conformity with Bramante's project, he made the drum massive at the base and thinner above, but in place of Bramante's external colonnade surmounted by a solid ring of masonry, forming a continuous abutment at the springing of the vault, he substituted a series of sixteen isolated buttresses, and raised the dome so high above them that they do not meet its thrusts at all. The drum is carried up above the buttresses so as to form

an attic over the order with which the buttresses are ornamented, and from the top of this attic the dome is sprung. The stepped circles of abutting masonry at the haunch are omitted, and instead of one solid vault shell, such as Bramante intended, Michael Angelo's project provided for a variation of

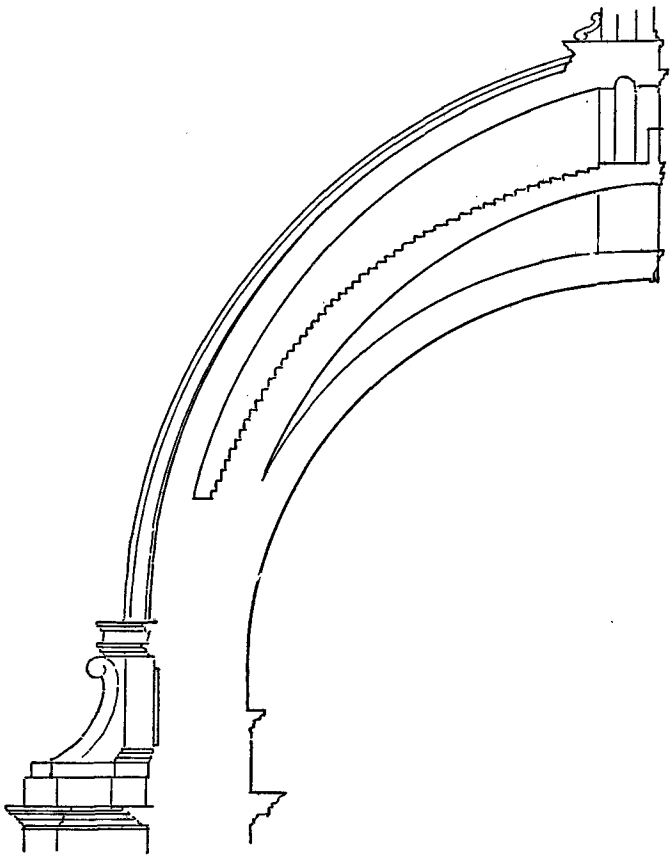


FIG. 26. — The model.

Brunelleschi's double vault, and was to include (as the model, Fig. 26, shows) three separate shells.[1] The inner shell was to be hemispherical (Michael Angelo thus showing that he appreciated the superior character of the dome of the Pantheon and

[1] Michael Angelo's model, on a large scale and finished in every detail, is preserved in an apartment of St. Peter's.

that of Bramante's scheme to the dome of Brunelleschi as to internal effect), while the other two were to be pointed, with diverging surfaces. Following Brunelleschi, he introduced a system of enormous ribs rising over the buttresses of the drum, and converging on the opening at the crown of the vault. These ribs unite the outermost two shells, extending through the thickness of both, and support the lantern.

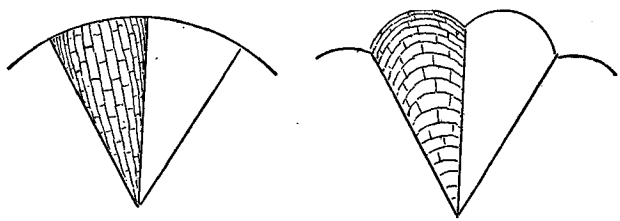
Of this hazardous scheme only the drum was completed when Michael Angelo died. But the existing dome, which was carried out by his immediate successors, is substantially his design, though the innermost shell of the model was omitted in execution, and the vault was thus made double instead of threefold (Fig. 30). This dome does not, however, divide into two shells from near the springing, but is carried up in one solid mass almost to the level of the haunch. Michael Angelo may have thought that this would strengthen it, but the solid part has not a form capable of much resistance to thrust, and the isolated buttresses are located so far below the springing that they contribute practically nothing to the strength of the system, as already remarked, and as we shall presently see.

Although this great dome has been almost universally lauded, it is entirely indefensible from the point of view of sound principles of construction. The work shows that Michael Angelo was not imbued, as Bramante had been, with a sense of the essential conditions of stability in dome building as exemplified in the works of Roman antiquity. He had conceived an ardent admiration for the dome of Florence, and in emulation of it he changed the external outline from the hemispherical to the pointed form, and, lifting it out of the buttressing drum, set it on the top.[1]

This vast dome is an imposing object, but it is nevertheless a monument of structural error. Not only does its form and construction render it much less secure than Brunelleschi's dome, but its supporting drum is entirely unsuited to its function,

[1] Michael Angelo's remark, quoted by Fontana (*Tempio Vaticano*, vol. 2, p. 315): "Imitando l' antico del Pantheon, e la moderna di Santa Maria del Fiore, corresse i difetti dell' uno, e dell' altro," shows that he regarded as a defect the lowness of the Pantheon dome, which in point of construction is its capital merit, and that what he proposed to correct in the dome of Florence was its octagonal form, which is essential to its peculiar structural system.

save as to its strength to bear the mere crushing weight of the vault. In replacing the continuous colonnade, with its abutting load, of Bramante's drum by the isolated buttresses, Michael Angelo ignored the true principle of resistance to the continuous thrusts of a dome. It has been thought that the rib system justifies this, that the ribs gather the thrusts upon the buttresses and give the dome a somewhat Gothic character. But this cannot be so. It is impossible for a dome to have any Gothic character. In addition to what has been already said (p. 20) on this point, it may be further remarked that, so long as the surfaces between the ribs remain straight on plan, as in the dome of Florence, or are segments of a hemisphere, or of a dome of pointed form on a circular base, like the dome of St. Peter's, no ribs can be made to act in a Gothic way. A circular vault on Gothic principles would necessarily be a celled vault, more or



A FIG. 27. *B*

less like the small vault of the Pazzi already described (p. 27). In such a vault there would have to be an arch (in a true Gothic vault a much stilted arch) in the circumference of the drum over the space between each pair of ribs. The crowns of these arches would reach to a considerable height, in a developed Gothic vault to nearly or quite the height of the crown of the vault itself. The triangular spaces enclosed by these arches and converging ribs would then be vaulted over by slightly arched courses of masonry running lengthwise of the triangle, or from the arches to the ribs, and approximately parallel with the crown of the cell (*A*, Fig. 27). Thus in place of an unbroken hemispherical or oval vault, we should have one consisting of deep cells. The drum would have to rise far above the springing, and the haunches would need to be loaded with a solid filling of masonry. The vault would thus be completely hidden from view on the outside. Nothing short of this would produce

SANT' ANDREA
Mantua

a circular vault on Gothic principles, or one in which the ribs could act in a Gothic way.[1] The nearest approach to such a form, in a vault that may with any propriety be called a dome, occurs over the crossing of nave and transept in the old cathedral of Salamanca in Spain (Fig. 28).[2] But this vault has a

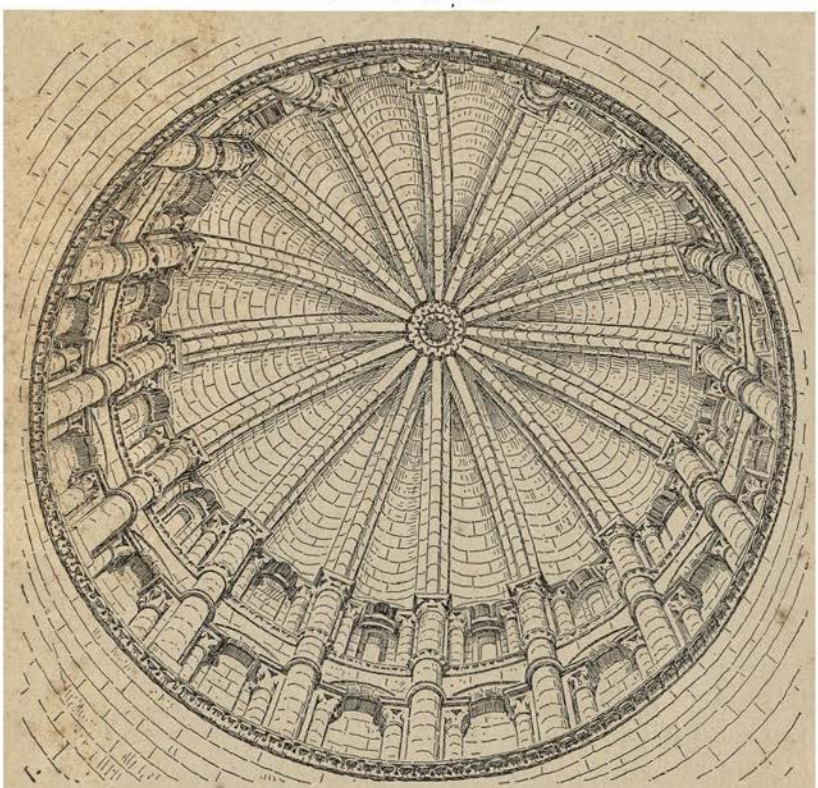


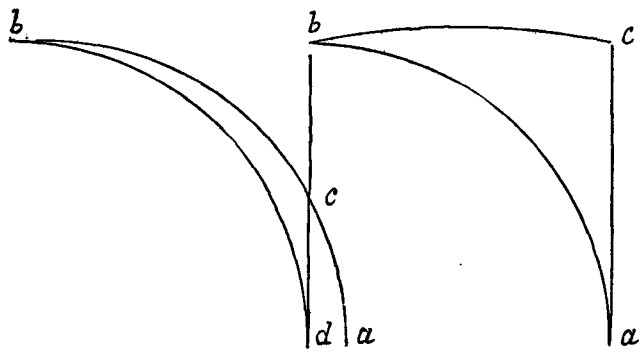
FIG. 28. — Interior of dome of Salamanca.

very different character from the imaginary one just described. It rises from the top of a high drum resting on pendentives, and is built on a system of salient converging ribs. The spaces

[1] A consistent exterior for such a vault would not, of course, be an unbroken drum, though a perfectly Gothic circular vault might be thus enclosed within a drum. A consistent external form would require salient buttresses against the lines of thrust, and the intervals between these buttresses would be open, as in a Gothic apse.

[2] The outside of this vault is figured in my *Development and Character of Gothic Architecture*, 2d edition, New York and London, The Macmillan Co., 1900, p. 287.

between these ribs are vaulted over with courses of masonry slightly arched from rib to rib, and thus running in a direction perpendicular to that of the courses in a Gothic vault cell, as in *B*, Figure 27. A series of hollowed gores are thus formed which give a scalloped instead of a plain circular plan to the vault as a whole. But such a vault differs fundamentally from a Gothic vault. For the line of the crown of each cell is the steep segmental curve *ab* in *A*, Figure 29. In other words, the vault as a whole is a hemisphere with its surface broken into shallow hollows like the gores of a melon. It is obvious that in a vault with cells so shaped the thrusts are as great at all points in the circumference as they are in a simple hemispherical dome, and that such a vault can have no Gothic character. To develop



A FIG. 29. *B*

this into any real likeness to a Gothic vault, it would be necessary to reduce it to an unbroken circular plan by cutting off the scallops at its base so that it would fit into the circular drum, upon the inner surface of which it would now intersect in series of small arches, one for each hollowed gore, with its springing at the point *d* and its crown at the point *c*. Then these arches would have to be raised by stilting and pointing until their crowns were brought up to the level, or near the level, of the point *b* as in *B* of the same figure. Thus the line *dc*, which represents the height of the arches in the first stage of this development, becomes the line *ac* in the second stage. So long as the chord of the arc *bc* is a steeply inclined line, the vaulting cells cannot bear upon the ribs, nor can the thrusts of the vault be concentrated in a Gothic way.

The vault of Salamanca is not a Gothic vault in any sense, though its rib system and its hollowed cells conform with the earliest stage of apsidal vault development leading to Gothic.[1] It is a dome, and like the larger dome of St. Peter's, it is sprung from the top of the drum; but unlike St. Peter's dome, it is powerfully abutted by turrets and dormers built against its springing and its haunch, and it is loaded at the crown with a cone of masonry, so that from without it looks like a stumpy spire, and not like a dome.[2]

But Michael Angelo's vault has not even such remote approach to Gothic character as the small dome of Salamanca has. Its surface is unbroken by any hollowing into cells. It is a perfect circle on plan, and its ribs, which are embedded and not salient on the inside, cannot, therefore, sustain the vault in any Gothic way. This dome has, moreover, so much of a spherical shape as to give it a stronger tendency to thrust than the dome of Florence has, and the thrusts are exerted equally on all points in the circumference of the drum. The isolated buttresses are therefore illogical, and being set against the drum only, and not even reaching to the top of the drum, they are ineffectual. Thus though the dome was bound with two iron chains, one placed near the springing, and the other at about half the vertical height of the vault,[3] it began to yield apparently soon after its completion. Fissures opened in various parts of both dome and drum which at length caused such apprehensions of danger, that Pope Innocent XI called a council of the most able engineers and architects of the time[4] to examine into the extent of the damage, and ascertain whether serious danger existed. This council concluded that the cupola was in no danger of disintegration, and the Pope, in order to restore confidence in its safety, charged Carlo Fontana, the architect, to write a book on the building and prove the groundlessness of any fears of its collapse. Thus the matter appears for the time to have been dropped. But subsequently the con-

[1] Cf. my *Development and Character of Gothic Architecture*, p. 70 *et seq.*

[2] The turrets, built upon the supporting piers of the interior, give the outside of the drum the aspect of a massive lantern.

[3] Cf. Poleni, *Memorie Istoriche delle Gran Cupola del Tempio Vaticano, e de' Danni di essa, e de' Ristoramenti loro* (Padua, 1768), p. 29.

[4] Milizia, *op. cit.*, vol. 2, p. 325.

dition of the structure became so alarming that three eminent mathematicians, among whom was the celebrated Boscovich, were, in the year 1742, commissioned by Pope Benedict XIV to make a further examination and submit a report with recommendations for its consolidation.

The condition of the fabric at the time of this examination will be understood from Figure 30, a reproduction of the illustration subjoined to the mathematicians' report.[1] They found the structure, as the illustration shows, rent into numerous fissures, some of which were large enough to allow a man's arm to be thrust through them. In some places these cracks had been filled up with brick and cement, and new ones had opened in the filling.[2] At what time the ruptures had commenced could not be definitely ascertained, but the mathematicians express the opinion, for which they state their reasons, that they may have started very soon after the completion of the work.[3] That they were not due to any weakness in the substructure was shown by the fact that this remained apparently quite firm. Had the fractures been caused by any weakness in the piers or pendentives, the mathematicians say,[4] they would be wide at the base of the drum, whereas they were found (as shown in the illustration) to be small at the base and to increase in magnitude toward the top of the drum, and in the region of the haunch of the dome. This was thought by them to show that they were clearly due to weakness resulting from the form of the structure. The report states[5] that the weight of the lantern had caused the heads of the great ribs to sink, the dome to expand at the haunch and at the springing, and the wall of the drum to be pressed outward at the top. To consolidate the fabric they recommended that additional chains be placed at various levels, the old ones having, they thought,[6] burst asunder by the force of the thrusts; but this could not be verified because they are embedded in the masonry. They also recommended clamps of iron to hold in the buttresses.

The Marquis Poleni of Padua, a distinguished engineer of

[1] *Parere di tre Mathematici sopra i danni che si sono trovato nella cupola di S. Pietro sul fine dell' Anno MDCCXLII. Dato per Ordine di nostro Signore Papa Benedetto XIV*, Rome, 1742. [2] See Appendix.

[3] "Cominciato forsi poco dopo terminata la fabrica." *Op. cit.*, p. 13.

[4] *Ibid.*, p. 14. [5] *Ibid.*, p. 15. [6] *Ibid.*, p. 19.

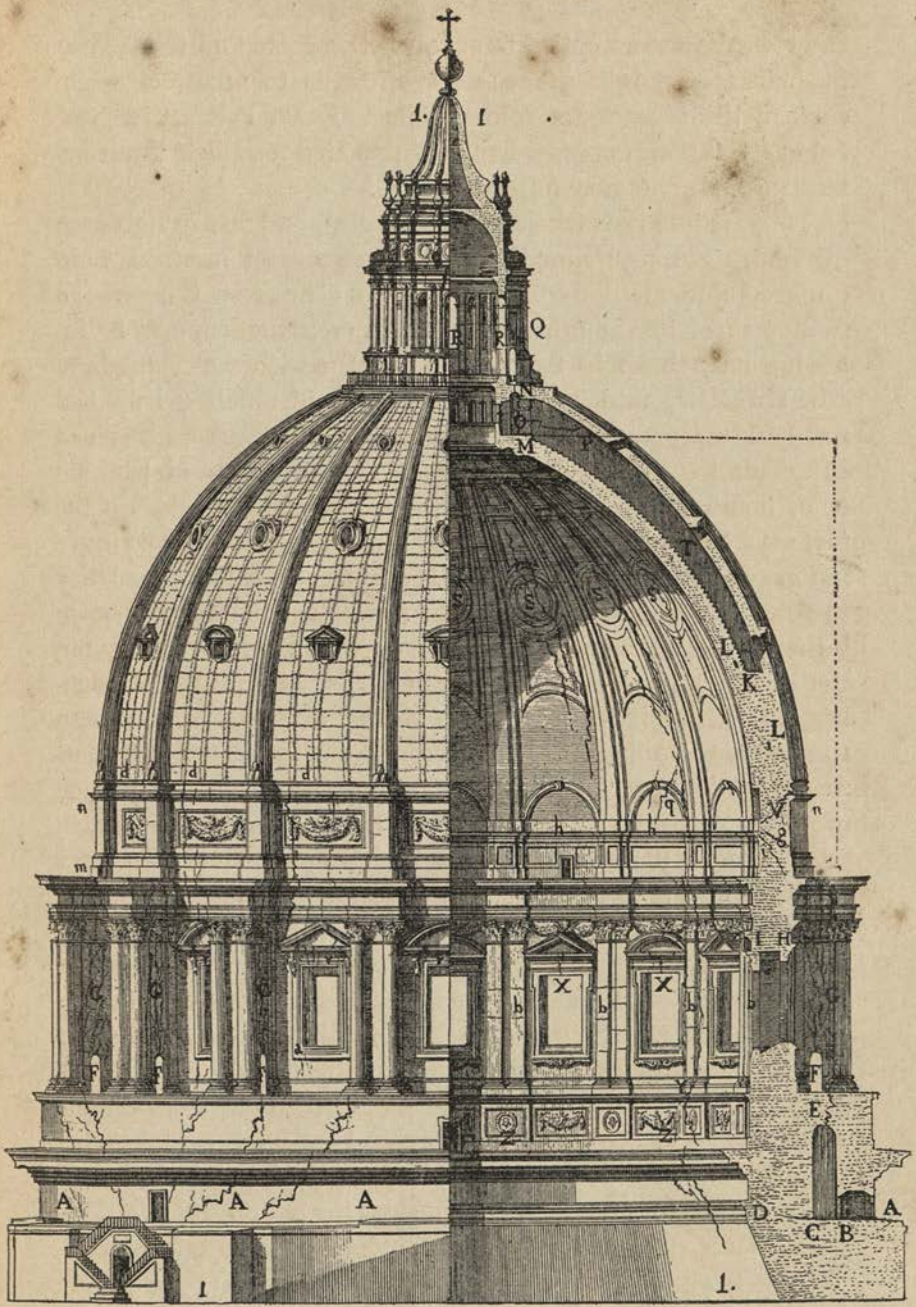


FIG. 30. — The dome with its ruptures.

the time, was then called to examine the dome and to take such means as he might judge most effective to secure it against further disintegration. Milizia tells us[1] that Poleni, after careful examination, expressed the opinion that although the cupola had not the catenary outline which he considered the best for stability, it had nevertheless a good form, and was in no danger of ruin. He pronounced the fissures of no material consequence,[2] and attributed them to two classes of causes. The first of these he thought was haste in construction. The dome having been built in twenty-two months with materials of unequal quality, and not carefully laid, unequal consolidation resulted and caused numerous ruptures. The second class of causes he considered to consist in the action of heat and cold, humidity and dryness, lightning and earthquake. Thus far, says Milizia, the reasoning of Poleni is just, and worthy of his great mind, and he adds, "It would seem, then, that since the cupola was solid, it ought to have been left in peace, but he nevertheless advised five chains, which were placed under the direction of Vanvitelli."[3] The first of these chains was located at the base of the drum, the second at the level of the attic, the third at the springing of the dome, the fourth above the haunch, and the fifth around the opening at the base of the lantern.

Poleni, in his own book, is not wholly consistent in what he says of the dome. While affirming its form to be admirable and its strength sufficient, and attributing the ruptures to other causes than those inherent in the nature of the design, he yet, in another place, admits that they may be to some extent due to the shape of the vault which he here pronounces not high, or acute, enough.[4] His admiration for Michael Angelo makes it hard for him, as a rule, to find any radical defect in the composition; but this passage, and the fact that he caused the additional binding chains to be applied, would seem to show that he had misgivings, and did not consider the monument so entirely

[1] *Op. cit.*, vol. 2, pp. 327–328.

[2] It is true that fissures in a properly constructed vault are not necessarily alarming. Any vault may crack from unequal settlement of the supports. Gothic vaults are sometimes slightly ruptured in this way, but they are not thus endangered, because they are effectively buttressed. But fissures in a dome without abutments may be a sign of impending collapse.

[3] *Ibid.*, pp. 328–329.

[4] *Ibid.*, p. 388.

DOME OF ST. PETER'S
Rome

LIBRA
C
BO
BRA

safe as the general tenor of his book would lead us to believe. And the same misgivings are betrayed in what is said by the numerous other writers whose opinions are cited by him, though like himself they write for the most part with a manifest bias in favour of Michael Angelo. Thus one of these writers proposes that the outer covering of lead should be stripped off on account of its weight, and be replaced with copper, to which Poleni objects,[1] affirming that the weight is an advantage, and tends to hold the dome together. Another writer suggests that the lantern be removed in order to relieve the fabric of its weight. Another thinks that the buttresses should be heavily weighted with statues. It was also proposed that additional buttresses should be set against the attic of the drum, and carried up against the dome itself; and again it was proposed that massive abutments be built up over each of the four great piers, but to this it was objected that the additional weight of such abutments would dangerously overcharge the substructure. The most radical suggestion was that both dome and drum be demolished and rebuilt in a more pointed form. All of these suggestions were rejected, and it was finally decided to employ the additional chains proposed by Poleni as already stated.

The dome of St. Peter's (Plate III) was conceived in a grandiose spirit, which, while it drew inspiration in part from the ancient Roman source, recklessly disregarded the lessons which Roman art should teach as to principles of construction. I have said that Brunelleschi led the way in a wrong direction when he set his great dome on the top of its drum, and had resort to clamps and chains for the resistance to its thrusts that should have been given by abutment. In following his example, Michael Angelo wandered still farther from the path of true and monumental art. To make a dome on a large scale a conspicuous object, from the springing to the crown, is a thing that cannot be safely done in stone masonry. To make it stand at all, resort must be had to extraneous and hidden means of support, and even these are of uncertain efficiency for any length of time. The ancient Roman and the Byzantine builders settled, I think, for all time the proper mode of constructing domed edifices. Bramante had recognized this, and while striving to include in his design for the dome of St. Peter's as much as he could of

[1] *Op. cit.*, p. 399.

the new character embodied in Brunelleschi's dome, he tried at the same time to keep safely within the limits of the principles that had governed the ancient practice. He gave as much elevation to his dome as he thought these principles would allow, but even this, as we have seen, was too much, and in greatly increasing this elevation, so as to leave the dome entirely without abutment, Michael Angelo took unwarrantable risks, and lent his genius to the support of false principles.

That this has not been generally recognized is due to the fact, already remarked, that the architects and leaders of taste of the Renaissance have made too little account of structural propriety, and structural expression, as a necessary basis for architectural design.

Recent writers have ignored the condition of this monument. They do not appear to be aware of it; and although it has been fully set forth, and discussed at great length by the earlier Italian writers, few of them have found the true cause in its flagrant violation of the fundamental laws of stability. They attributed the alarming progress of disintegration, as we have seen, to accidents and circumstances of various kinds; and have sought to shift the responsibility to the shoulders of Bramante. They have affirmed that he did not take enough care to make his foundations secure. There appears to be some justice in this, though since his work was strengthened by his immediate successors[1] the ruptures in the dome cannot, according to the mathematicians, be attributed to this. The remarks of the old writers on Bramante must, I think, be taken with some allowance. Their bias against him is very marked. Thus Poleni quotes Condivi, a disciple of Michael Angelo, as saying, "Bramante being, as every one knows, given to every kind of pleasure, and a great spendthrift, not even the provision given by the Pope, however much it was, sufficed him, and seeking to expedite his work, he made the walls of bad materials, and of insufficient size and strength."[2]

[1] The principal work of Bramante's immediate successors on the fabric itself appears to have been to strengthen the great piers, which seem to have been built too hastily, and on insecure foundations. Poleni tells that in order to strengthen these foundations, well-holes were dug under them and filled with solid masonry, and that arches were sprung between these sunken piers, consolidating the whole. *Op. cit.*, p. 19.

[2] *Ibid.*, p. 19.

A great deal has been said of the beauty of St. Peter's dome. It has been held up as a model of architectural elegance by countless writers from Vasari down. But no abstract beauty, no impressiveness as a commanding feature in the general view of the ancient city that it may have, can make amends for such structural defects. Its beauty has, however, I think, been exaggerated. Its lack of visible organic connection with the substructure makes it inferior in effect to the dome of Florence, where the structural lines of the edifice, from the ground upward, give a degree of organic unity, and the buttressed half-domed apses, grouped in happy subordination about the base of the drum, prepare the eye to appreciate the majesty of the soaring cupola as it rises over them. The dome of St. Peter's has not the beauty of logical composition. Beauty in architecture may, I think, be almost defined as the artistic coördination of structural parts. As in any natural organic form, a well-designed building has a consistent internal anatomy, and its external character is a consequence and expression of this. The dome of St. Peter's violates the true principles of organic composition, and this I believe to be incompatible with the highest architectural beauty.

CHAPTER V

CHURCH ARCHITECTURE OF THE ROMAN RENAISSANCE

As for the rest of the church of St. Peter, we need give attention to that part only which was designed by Michael Angelo on the basis of the original scheme of Bramante, namely, all to the eastward of,[1] and including, the first bay west of the crossing. The western bays of the nave as it now stands were, as is well known, added at a later time by the architect Maderna. The plan (Fig. 31) of the earlier part is thoroughly fine, and if the elevation had been made consistent with this plan, St. Peter's might have been one of the noblest monuments in Christendom. But the architects of the Renaissance rarely sought consistency in design; they were prone, from first to last, to mix incongruous elements. The essentially Byzantine plan here adopted could not be carried out in elevation with classic Roman details with a noble result; and the attempt which Michael Angelo made to produce an architectural effect foreign to the real structural system led of necessity, not only to such inconsistencies as are common in Renaissance motives, but to some awkward makeshifts which have not, I believe, been hitherto noticed by writers on this edifice.

Following what appears to have been Bramante's intention, Michael Angelo constructed barrel vaults over the arms of the cross,[2] supporting them on piers and arches which had been begun by Bramante. To this simple and reasonable scheme he applied a colossal order of Corinthian pilasters, a pair against each pier, as Alberti had done on a smaller scale at Mantua, and as Bramante appears to have intended in the great piers of the crossing, if not in all of the others. Apart from the superficial and purely ornamental character of the order, and its

[1] I call the end of the sanctuary "the east end" according to the nomenclature of the usual orientation. St. Peter's, as is well known, does not conform to the general rule which has prevailed since the fifth century.

[2] These vaults may have been begun by some of his predecessors. It is impossible to make out how far the building had been actually advanced by them.

inappropriateness as ornament in such a system, its exaggerated scale dwarfs the effect of magnitude in the whole interior. The eye naturally estimates this magnitude by the customary proportions of a large classic order, and while these are by no means fixed, there is an approximate mean scale upon which we base our judgment. No beholder on entering St. Peter's can, indeed, fail to be impressed with the unusual size of the order; but he

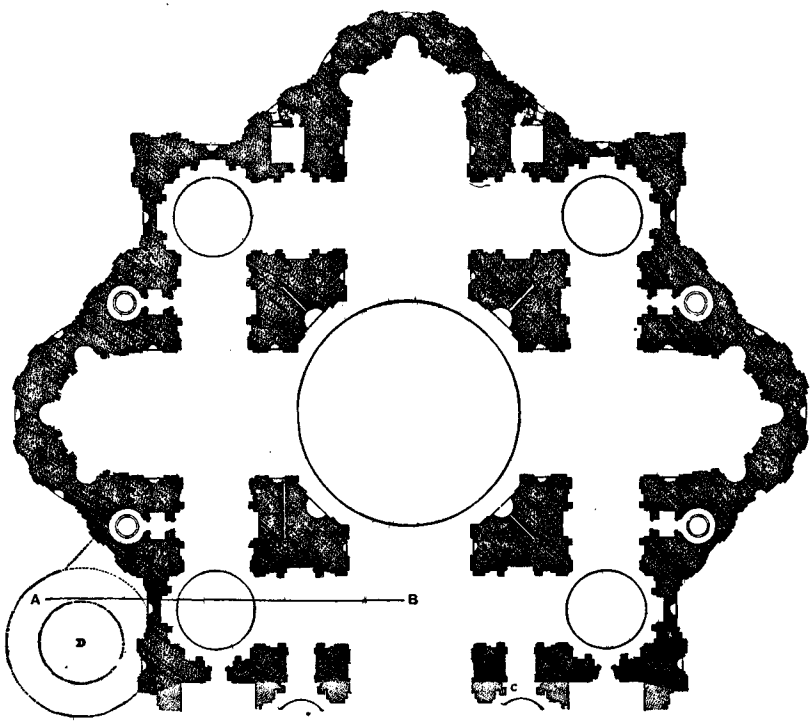


FIG. 31. — Plan of St. Peter's, from Fontana.

is not apt to realize how far it exceeds the largest orders of antiquity. The order of the Parthenon is about forty-five feet high, and that of the portico of the Pantheon is about sixty feet. These are exceptionally large among the orders of Greek and Roman antiquity,[1] but the order of St. Peter's is one hundred feet high.

[1] The colossal order of the Temple of the Sun at Baalbek is so unique in scale, and so little known, that it does not influence our general notions of the size of a large classic order.

The lack of due effect of scale in this interior has been often remarked, and it is generally attributed to the great magnitude of the structural parts. The size of these parts could not, however, well be different from what they are. Their magnitude is determined by the scale of the great dome and the width and altitude of the arms of the cross. The piers of the crossing are masses of masonry measuring on their longer sides more than fifty feet on the pavement, while the pendentive arches are one hundred and fifty feet high, and those of the arms of the cross are seventy-five feet high. But with appropriate treatment their scale might have been made more apparent. To adorn such piers and frame such arches with a classic order is to destroy the proper effect of scale, as well as to violate the true principles of architectural design by using structural members without any structural meaning.

Apart from the barbarism already remarked (p. 29) of springing a vault from a classic entablature, the effect of the gigantic order is unhappy in other respects; the great salience of its cornice cuts off from view the lower part of the vaulting, and this pronounced overhanging ledge, extending around the whole interior, breaks the continuity of the upright lines into the vaulting, and diminishes the effect of altitude.

But not only did Michael Angelo employ this incongruous and ineffective ornamental scheme for the interior of St. Peter's, he also adopted a corresponding design for the exterior which wholly contradicts the real character of the structure and led the architect into some curious makeshifts. For this exterior he used another gigantic order surmounted with an attic story. This obliged him to carry up the enclosing walls of the aisles to a height equal to that of the nave, and led to difficulties within. For the aisle vaulting was now far down below the top of these walls, and it therefore became necessary, unless the space above this vaulting was to be left open to the sky, with the enclosing wall standing as a mere screen answering to nothing behind it,[1] to construct a flat roof at the level of the attic cornice. Figure 32, a section through this part of the structure, will explain this and some other awkward expedients to which the architect was driven by the use of this colossal external order. Of the two compartments through which the line

[1] As it actually does in the western part of the nave built by Maderna.

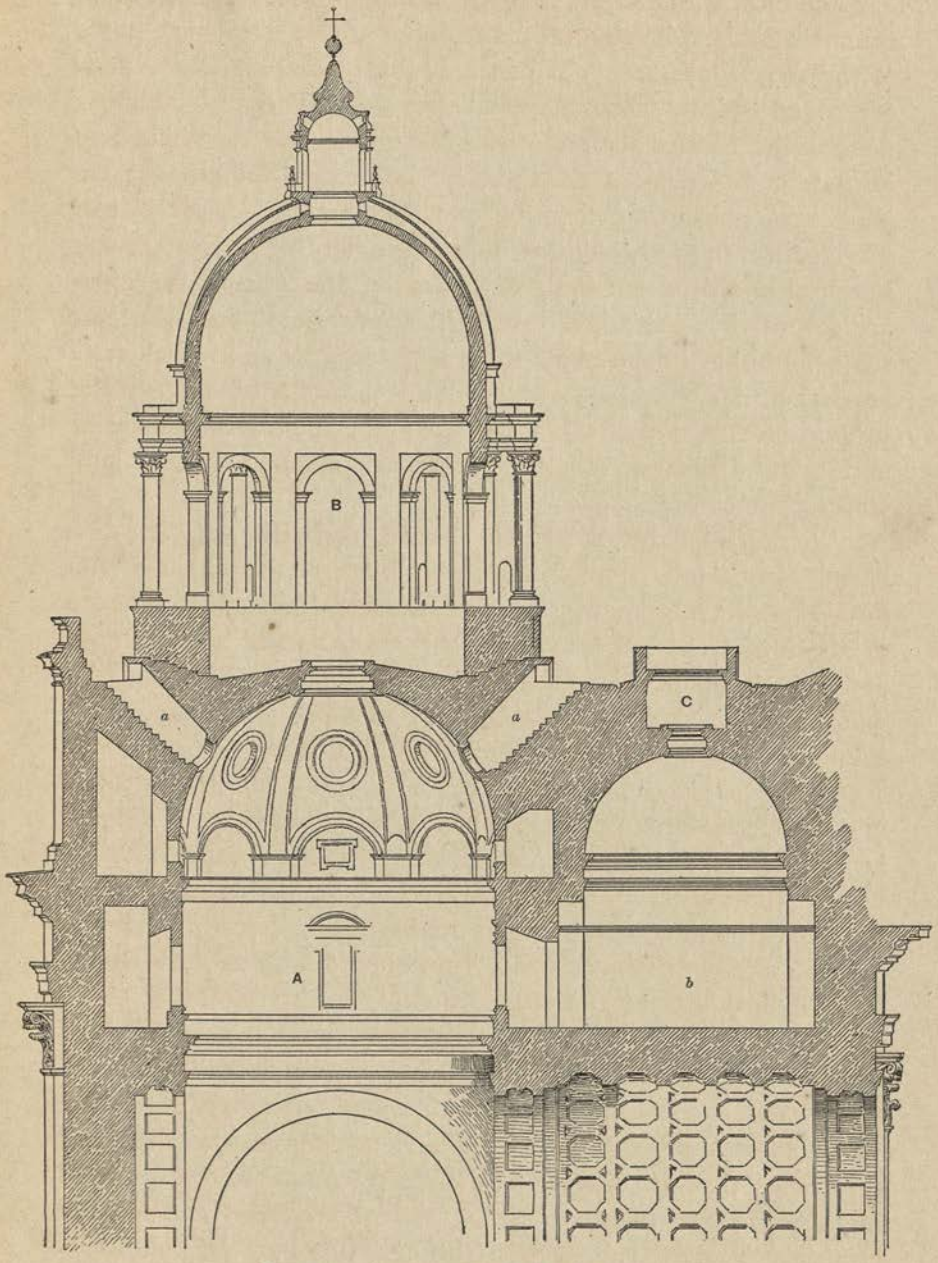


FIG. 32. — Section of aisle of St. Peter's.

AB (plan, Fig. 31) passes, one has a barrel vault and the other a dome, and, as each of the other corresponding parts of the plan are vaulted in the same way, there are four small domes in all. The effect of four smaller domes grouped around the great central one would be happy for both internal and external effect, if they were properly related in proportions, and the scheme were carried out in a structurally consistent and rational way; but such a scheme could not be developed here. For from the level of the aisle arches a dome, even on a proportionately high drum, could not be made to reach the level of the cornice of the enclosing wall unreasonably elevated for the sake of the gigantic external order. But Michael Angelo nevertheless constructed such a dome (*A*, Fig. 32), although it had to be sunk up to its crown beneath the aisle roof, and then, for external effect, he built another dome over it (*B*, Fig. 32). To light the lower dome it was necessary to sink oblique openings, *a*, through the massive masonry of the roof, and to light the useless vaulted chamber, *b*, which he was obliged to make over the barrel vault of the inner compartment (the crown of which is still farther down below the roof), the well, *c*, had to be sunk. Thus instead of making a reasonable design with ornamental details appropriate to its structural forms, Michael Angelo first conceived an ornamental scheme consisting of the inappropriate colossal order, and then fitted the building to it, filling up vacant spaces with extravagantly massive solids and useless voids, and resorting to other tortuous devices to piece out a fundamentally irrational system.

Such is St. Peter's church, which, though it has been much criticised, has been more generally lauded as a model of architectural greatness. Its real character has rarely been analyzed or rationally considered. That it has qualities of majesty and grandeur need not be denied; but these qualities are mainly due to its vast magnitude, and to what it retains of the design of its first, and greatest, architect. The manner in which the scheme of Bramante was modified and distorted by his successors, and chiefly by Michael Angelo, notwithstanding his professions of admiration for Bramante's intentions, is far from admirable, as I think the foregoing account of its structural and artistic aberrations must show. The building as a whole is characterized by incongruity and extravagance, and when we

consider further that the ornamentation of the interior is for the most part a cheap deception, the rich coffering of the vaulting and the pilasters of the great order being wrought in stucco on a foundation of brickwork, we get the measure of the ideals and architectural standards of men who, like Vasari, could write of it that, "not in Christendom, nor in all the world, can a building of greater magnificence and grandeur be seen."[1] And this short-sighted admiration did not abate as time went on, as we learn from the estimates quoted by Fontana in his well-known book,[2] among which are the following: "Temple more famous than that of Solomon," "Unique miracle of the world," "Chief among the most celebrated of Christendom," "Compendium of the arts," "Basis of the Catholic faith," "Unique edifice of the orb of earth," etc., etc.

Before leaving St. Peter's a word may be said of a project for the building which was prepared by Antonio San Gallo the younger, Michael Angelo's immediate predecessor as architect for the fabric. This design, no part of which was ever carried out, is embodied in a wooden model preserved with that of Michael Angelo in the existing edifice. The most meritorious feature of this model is the dome which, from a structural point of view, is better than the one that was built, since it is well abutted both at the springing and at the haunch. This important condition is secured, however, by an architectural treatment that cannot be commended, and consists of two superimposed concentric arcades, the lower one surrounding the drum and abutting the vault at the springing, while the upper one is set in retreat and fortifies the haunch. The architectural effect of these arcades, which are of course adorned with classic orders, is not happy because an arcade with a classic order is not an appropriate form of abutment, though it may be made mechanically effective, and also because the upper circle, rising from within the circumference of the lower one, gives the composition an unpleasantly telescopic effect.

Our consideration of St. Peter's has led us to an advanced phase of the church architecture of the Roman Renaissance, and we must now go back and examine a few of the earlier

[1] *Le Vite*, etc., vol. 7, p. 249.

[2] *Il Tempio Vaticano e sua Origine*, etc. Discritto dal Cav. Carlo Fontana, Rome, 1694, vol. 2, p. 406.

structures in Rome and elsewhere that were produced under the distinctly Roman influence.

The church of Sant' Agostino is spoken of as a building of the early Roman Renaissance, and is said to have been built by the architect Giacomo da Pietra Santa between 1471 and 1484. But it is incredible that such a church could have been designed by any architect of the Renaissance, or by an Italian architect of any time. Letarouilly says of it that from the thirteenth century the Augustinians had a convent and small church in Rome, and that two centuries later they resolved to enlarge the church, and employed as architects Giacomo da Pietra Santa and a Florentine named Sebastiano.[1] The character of the building is such, however, as to warrant the belief that it is a mediæval structure with slight interior ornamental additions of the Renaissance, which may be by Pietra Santa, and a façade, dating from before the close of the fifteenth century, by Baccio Pintelli. In general character the church is in the style of the Rhenish Romanesque architecture of the twelfth century. It has a nave with groined vaulting in square compartments, each embracing two vault compartments of the aisles. It has also the Rhenish alternate system with plain square piers, and archivolts of square section, originally without mouldings, and the main piers have each a broad pilaster-strip carried up to the springing of the vaults. The triforium space has no openings, and the clerestory has plain round-arched windows. It is thus a thoroughly northern Romanesque scheme, entirely logical in its simple construction and fine in its proportions. The Renaissance interpolations consist of a few ornamental details only. A stilted composite column is set against the pilaster-strip of each main pier (Fig. 33), this column is crowned with an entablature-block reaching to the level of the triforium, and upon it is set a short pilaster surmounted with a smaller entablature-block at the vaulting impost. This superfluous and irrational compound, breaking

FIG. 33.

[1] Letarouilly, *Edifices de Rome Moderne*, Paris, 1860, p. 350.

the reasonable and effective continuity of the mediæval pilaster-strip, greatly disfigures the originally noble design. The only other neo-classic details of the interior are mouldings at the arch imposts and on the archivolts, and coffering on the soffits of the arches. These are quiet and less injurious in effect, though equally superfluous and inappropriate. Thus did the

FIG. 34. — Façade of Sant' Agostino.

sophistication of the Renaissance designers often blind them to real architectural excellence, and lead them to fancy that they could improve such an admirable and consistent interior by incongruous and meaningless features.

The façade (Fig. 34) is wholly of the Renaissance, and has no mediæval character except in its general outline, which conforms with that of the building itself. It is a simple design,

and foreshadows those of Vignola and Della Porta for the church of the Gesù, to which it is superior in merit, being more reasonable and quiet. Shallow pilasters of considerable elegance mark the divisions of the interior, the portals are framed with simple classic mouldings without orders, and the aisle compartments are surmounted with reversed consoles after the manner of those introduced by Alberti in the façade of Santa Maria Novella in Florence. These consoles are, however, so different in character from the rest of the façade, having their details in higher relief and being set a little in retreat, that they would appear to be later interpolations. Answering to nothing in the building, they are superfluous ornaments, and do not improve the composition, which without them is as reasonable as a composition made up of superficial classic details can well be. A peculiar feature of this front is the truncated pediment that crowns the lower division, and forms the basis of the clerestory compartment. The small rectangular tablets that break the wall surfaces are also noticeable as foreshadowing a treatment that was subsequently much affected by Vignola. Contemporaneously with the façade, and by the same architect, a dome on a drum resting on pendentives was built over the crossing. The present dome rising directly from the pendentives is an alteration of a later time.

In the earlier churches that were wholly built under the Roman Renaissance influence, the Byzantine scheme largely prevails in the plan and structural forms, probably because it lent itself to the most effective display of a high central dome. Among the first of these buildings is the church of Santa Maria della Consolazione outside the wall at Todi. The design is attributed to Bramante,[1] and it seems to bear enough resemblance to what we know of his work to justify the attribution. The arms of the cross here take the form of apses, the eastern one being semicircular on plan, and the others polygonal. The dome (Fig. 35) is raised on a high drum, and is almost an exact reproduction of that of San Pietro in Montorio. Its thrusts are thus entirely unbuttressed, but it is probably bound with chains, as was the custom at this time in domes constructed in this manner.[2] The half-domes of the apses are better adjusted. They spring from within the supporting walls, which are carried

[1] Milizia, *op. cit.*, vol. 1, p. 144, affirms that it is by Bramante.

[2] Cf. Fontana, *op. cit.*, vol. 2, p. 363.

up high enough to give effective abutment, and are loaded at the haunch by stepped rings of masonry, as in the Pantheon. The details of the interior (Fig. 36) consist of two superimposed orders of small pilasters, with great pilasters on the angles of

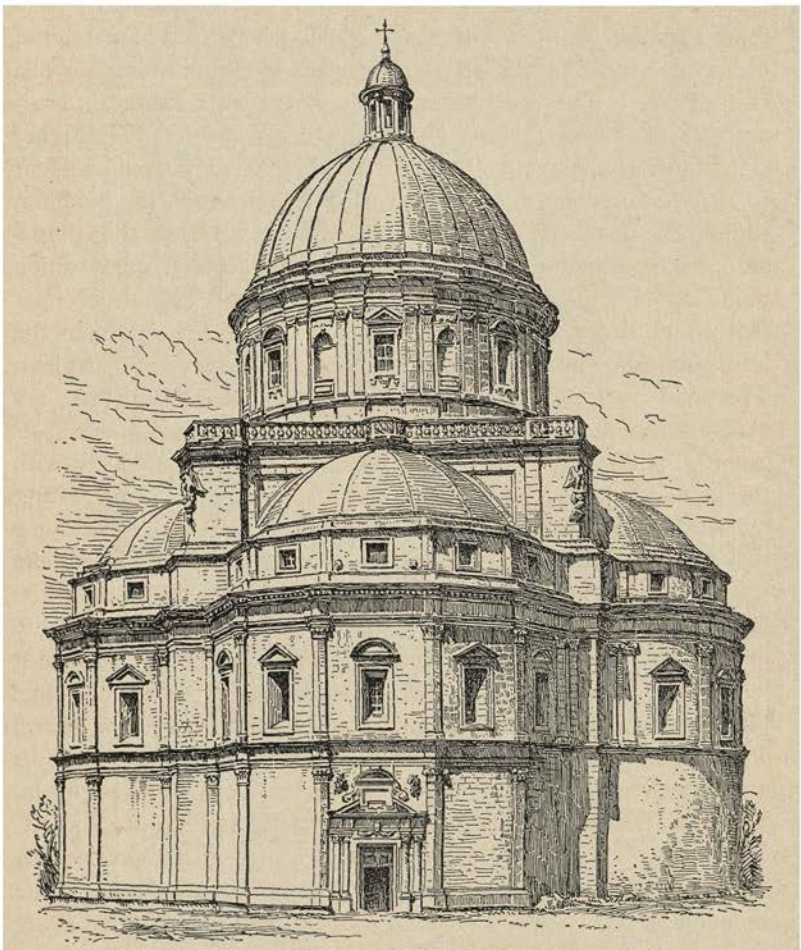


FIG. 35. — Exterior of Santa Maria della Consolazione, Todi.

the crossing reaching from the pavement to the springing of the pendentive arches, and from ressauts of the upper entablature converging ribs rise against the surfaces of the vaults. Several further awkward results are here noticeable as a consequence of this application of the inappropriate classic details to the

Byzantine structural scheme. The entablature which is carried around the whole interior at the springing of the vaults, has to do duty at once for the small order of the upper stage

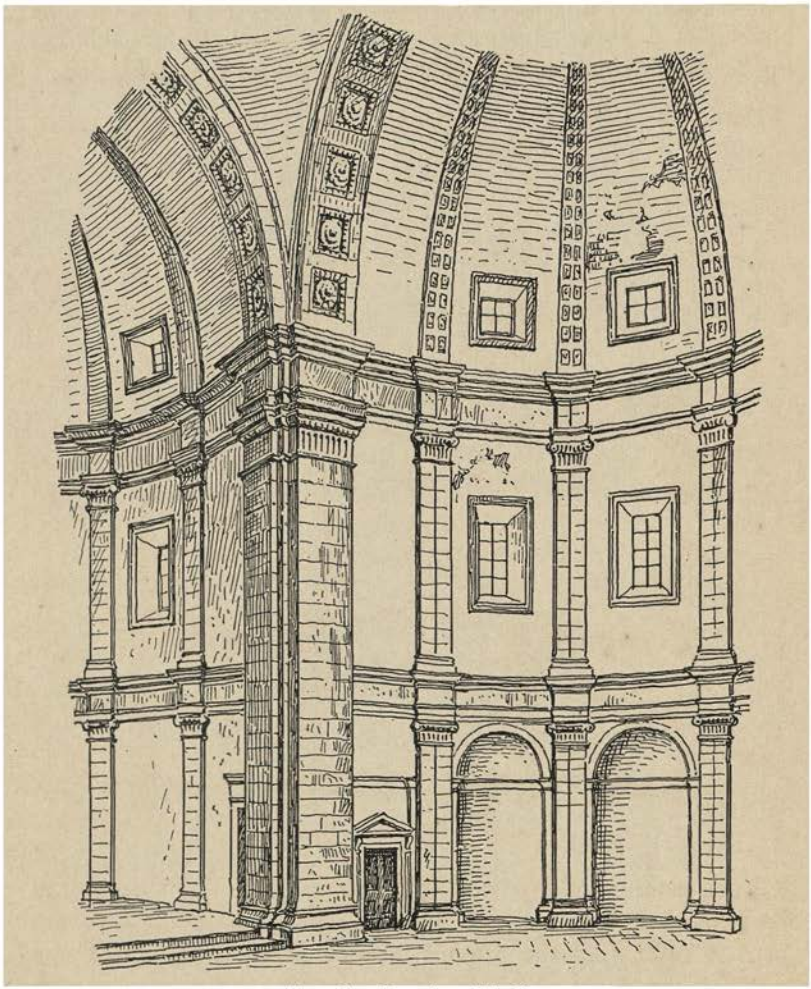


FIG. 36. — Interior of Todi.

and for the great angle pilasters, and thus in so far as it is in good proportion for the one it cannot be so for the other. Then the true magnitudes of the piers and the pendentive arches are falsified by the pilasters and simulated archivolts which spring from them. These piers and arches really embrace in width

both the pilasters and archivolts and the spaces of wall and vaulting between them and the pilasters of the smaller orders and ribs which spring from them. The proper and impressive massiveness of the essentially Byzantine system employed is thus contradicted by an apparent skeleton of classic orders simulating an organic structural scheme which has no real existence.

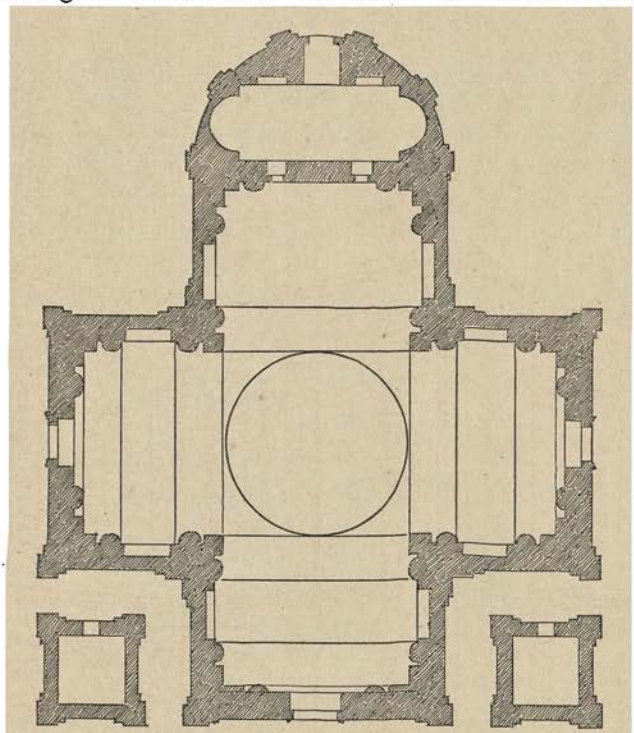


FIG. 37. — Plan of San Biagio.

The exterior of this monument (Fig. 35) has much merit in its general form and proportions. The great central square mass, visible from the ground upward, gives the sense of support for the dome which the eye demands, and the apses with their half-domes are effectively grouped in subordination to the crowning feature. But this merit, which Todi shares with many other buildings of the Renaissance, is primarily due to the Byzantine scheme adopted, and cannot, therefore, be wholly credited to the Renaissance architect.

A variation of this scheme occurs in the church of San Biagio

at Montepulciano by Antonio San Gallo the elder, and begun in the year 1518. Here the arms of the cross (Fig. 37) are square, with an apse added to the eastern arm. The interior is ornamented with a single, and very heavy, Doric order (Fig. 38), framing arched recesses in the imperial Roman manner.

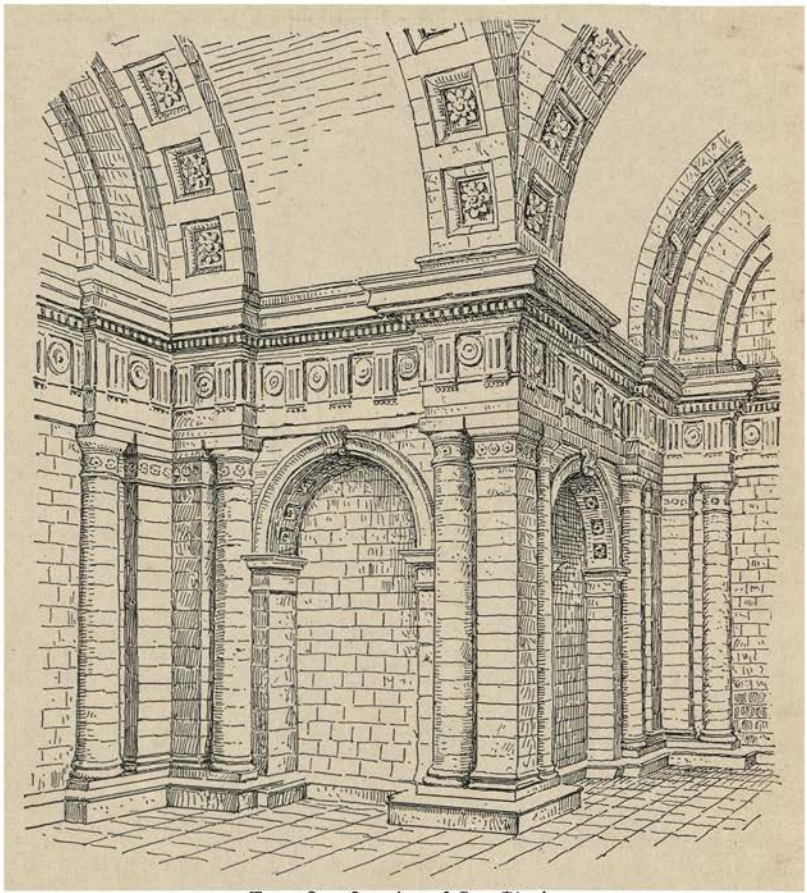


FIG. 38. — Interior of San Biagio.

The use of pilasters on the angles makes the awkward combination of a pilaster coupled with a column necessary, and since the entablature is in the plane of the wall, it has to be broken into very salient ressauts in order to cover these members. Above the entablature is a low ledge in retreat, broken into ressauts in conformity with those of the entablature, and from

these ressauts coffered archivolts are sprung under the ends of the barrel vaults which cover the arms of the cross. The Doric order is designed here, for the most part, in close conformity to ancient models, save for the pilaster on the angle, which does not generally occur in Roman monuments. The common Roman treatment of the angle is shown in the arch of Septimius Severus (Fig. 20, p. 41), where the end column of the order is placed at some distance from the end of the façade, which is left in retreat without any pilaster. But Serlio[1] describes the ruins of an ancient Roman building (Fig. 39) that appears to have been a sort of open arcade or stoa, used as a meeting place for merchants, on the angles of which pilasters are set together with columns, somewhat as they were by Alberti in Santa Maria Novella, by San Gallo here in San Biagio, and by many other architects of the Renaissance. He speaks of the treatment of the angles of this building as follows: "The corner pilasters are larger than the others, and were truly made with excellent judgment, for they strengthen

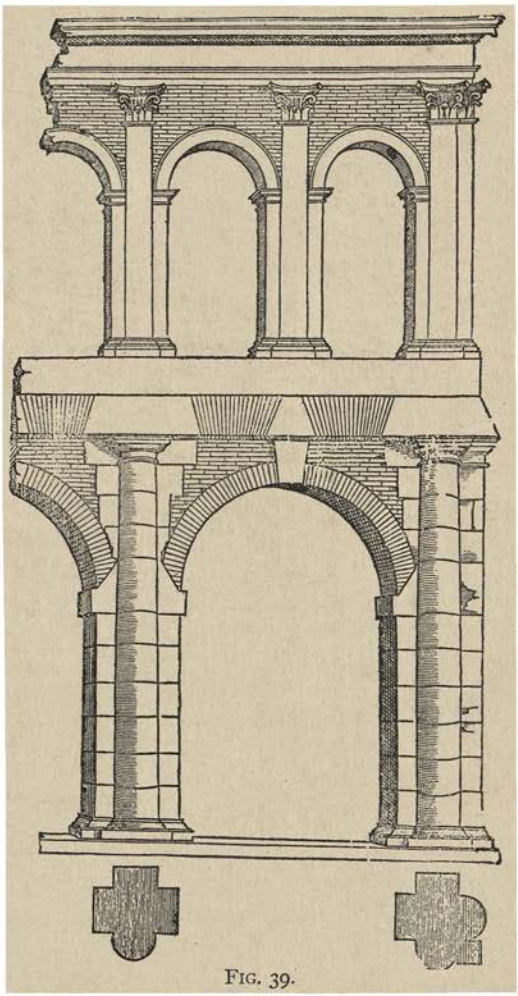


FIG. 39.

[1] Bk. 3, p. 54.

the angle with good effect; and from this architects may learn how to design angles with columns and pilasters bound together,

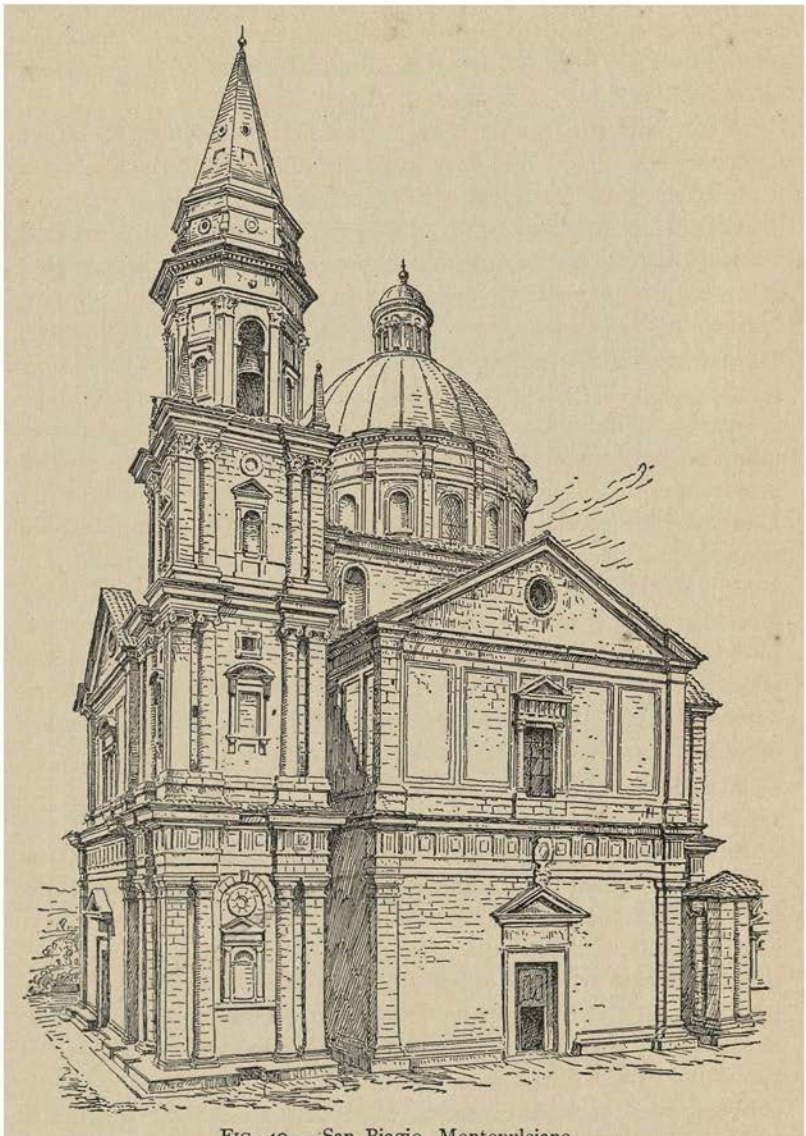


FIG. 40. — San Biagio, Montepulciano.

in order that the corner may be brought into line with the column, which gives more solidity to the angle. If the said

angle were withdrawn into line with the middle pilasters, the façade, when viewed obliquely, with the round column on the angle, would appear imperfect, and for this . . . I strongly commend this form of angle because it may be fully seen from all sides."

Externally the composition is remarkably good in its larger features (Fig. 40). The dome, of slightly pointed outline, on a high drum, rises grandly from the substructure, and is well proportioned in relation to it. The wall surfaces are treated broadly, with no orders carried across them. They are divided into two stages, with a pediment over each façade. Superimposed pilasters are set on the angles, and a Doric entablature, carried across the whole front, with ressauts over the lower pilasters, divides the two stages. The wall of the lower stage is entirely plain, with a severely simple rectangular portal surmounted by a pediment. The wall of the upper stage is divided into rectangular panels, as in the attic of the Pazzi chapel in Florence, the central panel being pierced with a square-headed window and framed with an order of which the capitals are Ionic and the entablature Doric. The cornice of the top story and the raking cornice of the pediment of each façade are broken into ressauts over the pilasters, and an order of Ionic pilasters, with a very high entablature broken into ressauts, surrounds the drum which supports the dome. Square detached towers are set in the reëntrant angles of the west side, only one of which was carried to completion. The completed one is in three stages, each adorned with a heavy order, Doric, Ionic, and Corinthian respectively. In these orders half-columns are coupled with angle pilasters, as in the interior, and the entablatures have ressauts on the angles over these members. An octagonal spire-like lantern, with a tall drum adorned with an order of Corinthian pilasters and surmounted by an attic, crowns the tower. Small obelisks set on the tower angles and reversed consoles against the angles of the attic give a simulation of Gothic form to the neo-classic scheme, and show the strong hold that mediæval ideas still retained upon the minds of the designers. The first of these spire-like towers of the Renaissance appears to be that of the church of Santo Spirito in Florence, which is spoken of by Milizia as the most beautiful of Italian bell towers.[1] It was designed by

[1] *Op. cit.*, vol. 2, p. 240.

Baccio d' Agnolo, who, beginning as a wood carver, imbibed the new enthusiasm for the antique, and after studying the ancient monuments of Rome[1] began the practice of architecture. This campanile is thus noteworthy as the first of a large class of modern towers with spires of which Wren's famous steeples were the ultimate outcome. The scheme is based on the mediæval campanile, the earliest form of which is the Lombard Romanesque tower. The Lombard tower is characterized by its simple rectangular outline, the walls rising sheer from the ground to the cornice, and strengthened and adorned with shallow pilaster-strips, corbelled string-courses marking the successive stories, and by small grouped openings. The tower of Santa Maria Novella in Florence is designed on this model, and the neighbouring tower of Prato and Giotto's famous campanile are later and richer modifications of the same type. In the tower of Santo Spirito (Fig. 41) Baccio d' Agnolo has taken the Lombard scheme and clothed it with a pseudo-classic dress. While his classic details have much of that elegance which belongs to the best Italian work, they are out of place in such a structure. The tall pilaster-strips of the mediæval tower gave an expression as of an organic skeleton running through the building. They had been developed out of the classic pilaster to meet the needs of the mediæval type of structure, and in substituting the superimposed classic orders for the appropriate continuous members, the artist did violence to the true principles of design.

FIG. 41. — Tower of Santo Spirito.

[1] *Op. cit.*, vol. 2, p. 239.

The lantern with which this tower is crowned is an adaptation of Brunelleschi's lantern on the dome of the cathedral, but made more aspiring in form, so that the general outline is like that of a Gothic spire. But the form of a Gothic spire is far removed from anything that is proper to classic composition.

Returning to San Biagio, it may be said that the orders here have a closer conformity with those of classic antiquity than occurs in the earlier monuments already mentioned, except the Tempietto of San Pietro in Montorio by Bramante.

In the nave of the church of Santissima Annunziatta in Arezzo, the same architect produced a different design. The nave (Fig. 42), of only three bays, is covered with a barrel vault, and the aisles have small domes on pendentives. The supporting piers are square with a shallow Corinthian pilaster on the face of each and an entablature passing over the crowns of the arches. The archivolts are deep, and each one is moulded on the face and plain on the soffit. These are carried on plain pilasters with simple impost mouldings. The wall above the entablature is plain and unbroken, except by a round-arched window over each bay of the ground story,

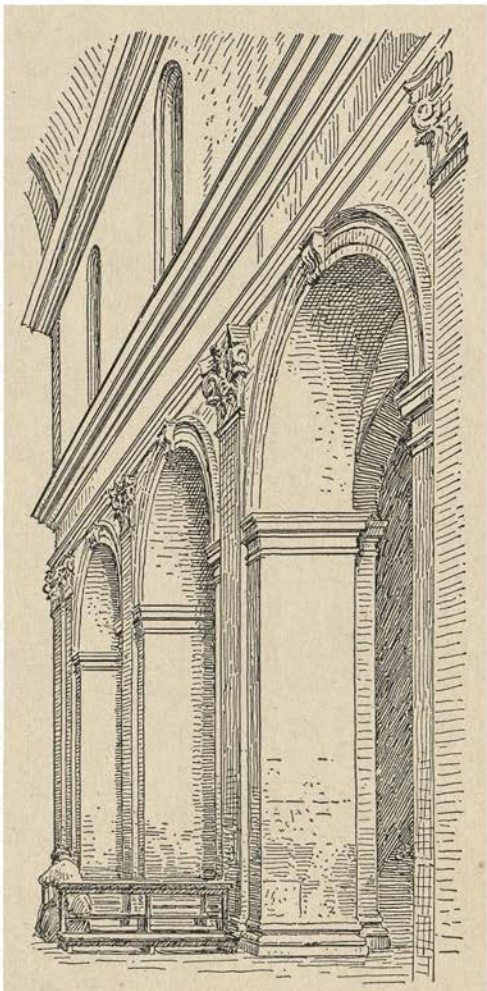


FIG. 42. — Santissima Annunziatta, Arezzo.

and is crowned with a heavy cornice from which the vaulting springs. We have here a structural system of imperial Roman massiveness, necessitated by the use of the great barrel vault.

After the early part of the sixteenth century Italy produced few architects of a high order of genius. Most of the more advanced neo-classic art is the work of mediocre men who, while professing to be ardent advocates of grammatical correctness according to the ancient rules, were hardly less capricious in their misuse of classic elements than their predecessors had been. To enter upon the examination of any large number of buildings in this later Renaissance style would be tedious and unnecessary; but in addition to what we have already seen of it in the work of Michael Angelo in St. Peter's, we may give some attention to a few characteristic works of the two leading architects of the later time: Vignola and Palladio.

Few men did more to make the neo-classic ideas authoritative than Giacomo Barrozzi, called Vignola. Beginning like so many others with painting, Vignola was led early to the study of architecture, in which he strove to gain an exact knowledge of classic Roman forms by drawing and measuring the remains of the ancient edifices. He thus became a devoted partisan of the antique, and he wrote a treatise on the Five Orders which has been widely accepted as an authoritative guide in modern architectural practice. To him, says Milizia, "Architecture is under lasting obligations because he established it upon system, and prescribed its rules." [1] And the same author tells us further that Vignola "purified architecture from some abuses which neither his contemporaries nor the ancients had perceived"; yet nevertheless, he adds, "his book has produced more harm than good, for to make the rules more general, and more easy of application, he has altered the finest proportions of the antique." No system of architecture, Milizia says further, "is more easy than that of Vignola, but the facility of it is obtained at the expense of architecture itself."

In his book,[2] which is made up largely of drawings and diagrams, Vignola shows how the proportions of an order may be regulated by a module down to the smallest details. He explains how to construct Ionic volutes and other curves from centres, and how to describe the details of Corinthian and composite

[1] *Memorie*, etc., vol. 2, p. 36. [2] *I Cinque Ordine d' Architettura.*

capitals by means of plan and elevation. He thus introduces a mechanical system modelled after the formulas of Vitruvius.

But notwithstanding his ardent advocacy of the principles of ancient Roman art, Vignola, in his own practice, not only altered the proportions of the orders as Milizia says, but made many fanciful changes in them. He introduced details which have no counterparts in correct Roman design, and freely mixed those of different orders. An instance of this occurs in an

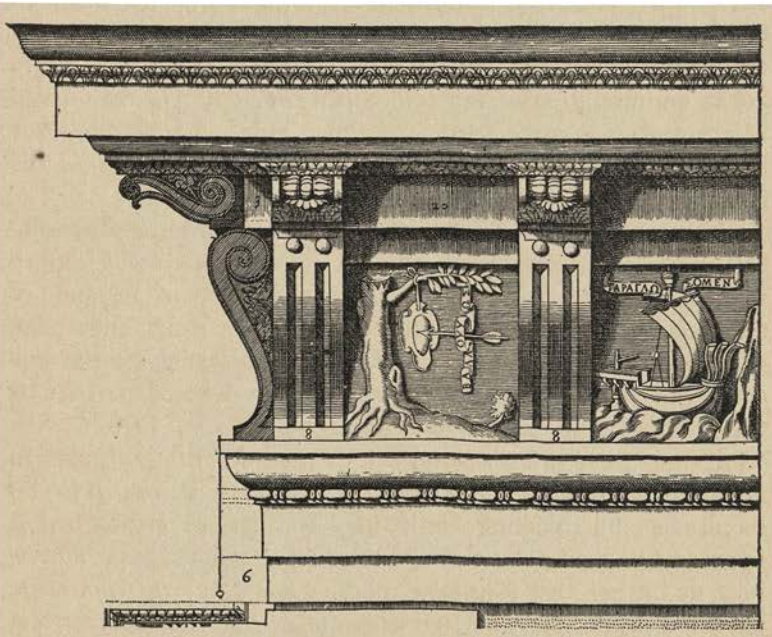


FIG. 43. — Vignola's entablature.

entablature figured in his book,[1] which he calls his own invention. In this composition (Fig. 43) we have a pseudo-Doric frieze between an architrave with multiplied faciæ, and a cornice on modillions. In the place of triglyphs this frieze has consoles with two channels, like those of a triglyph, on the curved face of each. To such travesties of classic design did the striving after novelty, which was curiously mingled with their ardour for the antique, lead the men of the later Renaissance. For an advocate of classic correctness such aberrations are the more

[1] *Op. cit.*, plate 32.

surprising as they are expressly condemned by Vitruvius, who warns his readers against them as follows: "If dentiled cornices are used in the Doric order, triglyphs applied above the voluted Ionic, thus transferring parts to one order which properly belong to another, the eye will be offended, because custom otherwise applies these peculiarities." [1] The Roman writer might, indeed, have given a better reason why the purity of the orders ought to be maintained, namely, because to each of them the fine artistic genius of the Greeks had given its appropriate details.

In designing entire buildings Vignola shows no less freedom in unclassic and incongruous combinations. This is manifested in the earliest of his church edifices, that of Sant' Andrea di Ponte

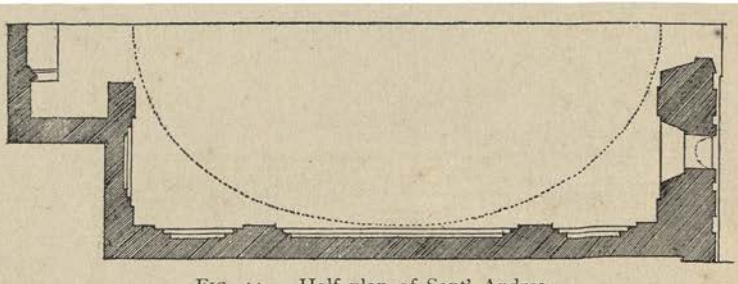


FIG. 44. — Half plan of Sant' Andrea.

Molle outside of the Porta del Popolo at Rome (Figs. 44, 45, and 46). It is a small, oblong, rectangular enclosure covered with a dome of oval plan on pendentives. The structural scheme is thus primarily Byzantine, but the architectural treatment is Roman. The dome is built in a praiseworthy form, and follows the construction of the dome of the Pantheon. An enclosing drum is carried up from the pendentives to a considerable height, and the haunch of the vault is well fortified by stepped rings of masonry. These rings are criticised by Milizia [2] as awkward and unnecessary because, he affirms, the vault might have been made secure without them. He probably means that it might have been bound with chains in the usual manner of the Renaissance. As in the Pantheon, the drum rises so high above the springing that but little of the dome is visible externally. The character of the rectangular substructure is puzzling to the eye of a beholder who looks for meaning and congruity in architectural forms. Wrought in shallow relief upon its façade is an order

[1] Bk. 1, chap. 1.

[2] *Op. cit.*, vol. 2, p. 30.

of Corinthian pilasters surmounted by a classic pediment, and the entablature of the order is returned on the sides of the building. The effect of the whole may be compared to that of a Greek temple with an attic supporting a dome built upon it. So awkward is the combination that it might be supposed to be a piece of patchwork in which a building of Greek temple form had been altered to gain more height within, were it not that

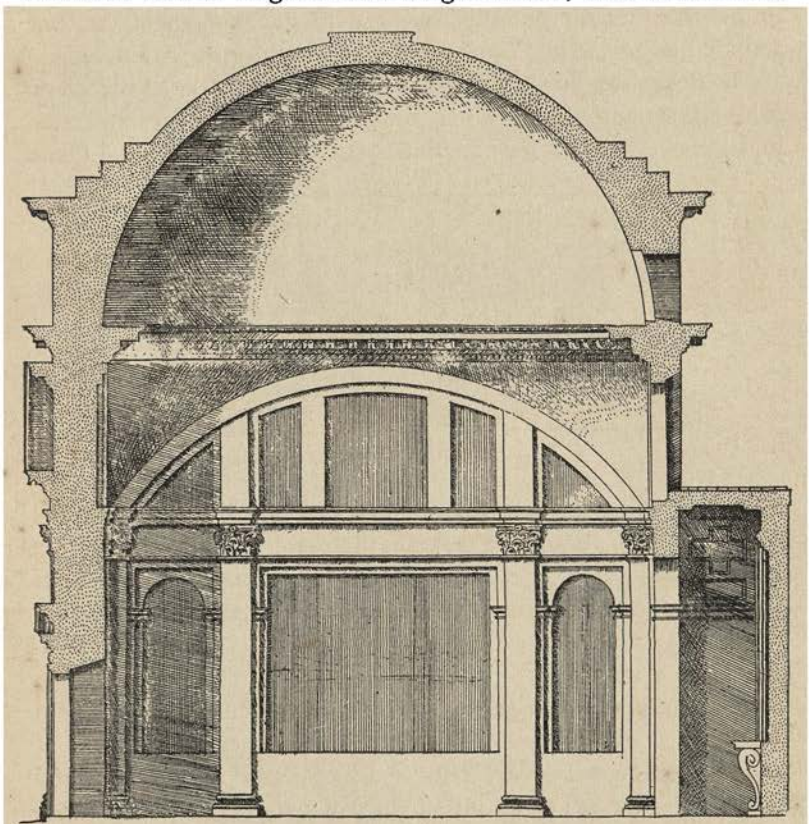


FIG. 45. — Longitudinal section of Sant' Andrea, from Vignola's book.

we find in the architect's own book the plan and section reproduced in Figs. 44 and 45, which show that the building as it now exists was originally designed in its present form.[1]

On reflection we discover that the scheme suggests a derivation from the Pantheon. Not only is the dome shaped and

[1] The drawings are found in the addendum to the edition of 1617, plates 7 and 8.

adjusted as in that ancient monument, save for its oval plan, but the rest of the composition is pretty clearly from the same source. To realize this it is necessary only to eliminate, in idea, the portico of the Pantheon with the exception of its pediment, and to conceive this pediment as drawn back into the plane of the rectangular façade. The pediment would then surmount the order of Corinthian pilasters which adorn this façade, and the

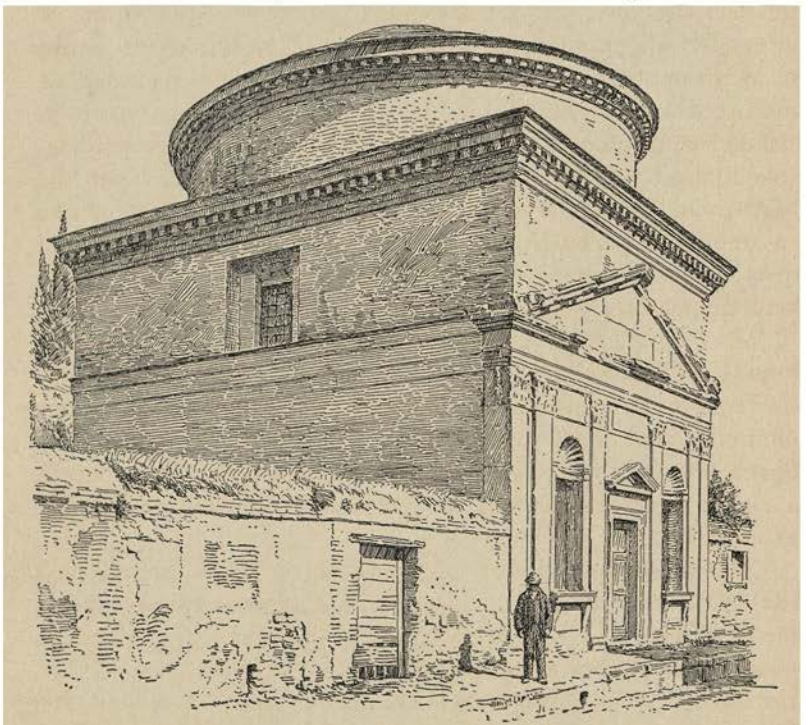


FIG. 46. — Sant' Andrea di Ponte Molle.

resulting composition would be substantially identical with that of the façade of St. Andrea. The minor differences are unimportant, as where Vignola has placed a pair of pilasters, instead of only one, at each end of the façade, has given the whole order more shallow relief, and has omitted the fluting on the pilasters. Even the niches on either side of the portal are reproduced from the Pantheon, though Vignola has pierced them with windows.

The likeness extends farther. The return of the entablature

along the side walls and the cornice of the attic are the same in both instances; but the second pediment in the Pantheon façade Vignola has not reproduced. St. Andrea is thus a close, though a modified, copy of the rectangular part of the Pantheon, with the rectangle elongated and surmounted by a dome designed on the Pantheon model. It was not known in the sixteenth century that the ancient monument is not a homogeneous structure, but an awkward patchwork, the result of successive alterations and additions.[1] Vignola took it entire as an example of that ancient style which he regarded as authoritative, and based his design for St. Andrea upon it, just as many modern architects have taken motives from Vignola himself. If it were proposed to erect a dome upon the Parthenon, few people would fail to see that the result would be an architectural monstrosity, yet this would not be very different from what was done in St. Andrea by an architect who has been looked upon as a champion of classic correctness in design.

M. Palustre has called attention to the fact that, in the interior of St. Andrea (Fig. 45), the two parts of the entablature which have no *raison d'être* under a vault have been omitted.[2] But the impropriety of a complete entablature in connection with vaulting is no greater than that of any part of a classic order, which has no justification in such connection, as we have already remarked.

The pilgrimage church of Santa Maria degli Angeli, built over the oratory of St. Francis at Assisi, is a more extensive monument which was begun by Vignola in the year 1569. Though completed by other architects, and extensively restored in 1832, the building as it now stands is uniform in style throughout, and bears the marks of Vignola's manner of design. It is cruciform in plan, with a long nave and aisles, and a square chapel opening out of each bay of each aisle. The nave and transept have barrel vaulting, a half-dome covers the apse, and a dome on a high drum resting on pendentives rises over the crossing. The

[1] Recent investigations, the results of which are set forth by Signor Beltrami (*Il Pantheon*, Luca Beltrami, Milan, 1898), have shown that the existing portico is of later date than either the rotunda or the rectangular front against which it is set.

[2] "A l'interieur, pourtourné de pilastres également Corinthiens, deux parties de l'entablement qui n'ont pas leur raison d'être sous une voute, c'est-a-dire la frise et la corniche, par un raffinement peu habituel aux Italiens, ont été supprimées." *L'Architecture de la Renaissance*, par Leon Palustre, Paris, Quantin, p. 72.

aisles have domical groined vaulting with transverse ribs, and the side chapels have barrel vaults with their axes perpendicular to that of the nave. These chapels thus form abutments to the inner vaulting, so that no external buttresses are needed. The entire fabric is of brick, but the details, including the orders of the interior, of the west front, and of the drum, are wrought in stucco. For the interior the architect has employed a great order of Doric pilasters, a single pilaster on the face of each pier, and on the sides of the piers, under the aisle archivolts, he has placed pairs of smaller pilasters. The soffits of the archivolts are very wide, and have each a pair of salient sub-archivolts corresponding with the pilasters. It had been common for the architects of the Roman Renaissance to break the entablature into ressauts over the columns or pilasters of the orders when used in this way, as San Gallo had done in Montepulciano and Michael Angelo in St. Peter's. But the effect of thus breaking the continuity of the cornice line is unpleasing, and Vignola has avoided it here by confining the ressaut to the architrave, frieze, and bed-mouldings, leaving the corona of the cornice unbroken as in Figure 47. The great piers of the crossing show the influence of St. Peter's in being splayed, and the forms of the pendentives lose their spherical surfaces in being fitted to the straight line of the splay, as they do in St. Peter's. The design of the façade expresses with unusual truthfulness the divisions of the interior, which are marked by pilasters like those of the great order within, and by an arch coinciding with the curve of the vaulting.

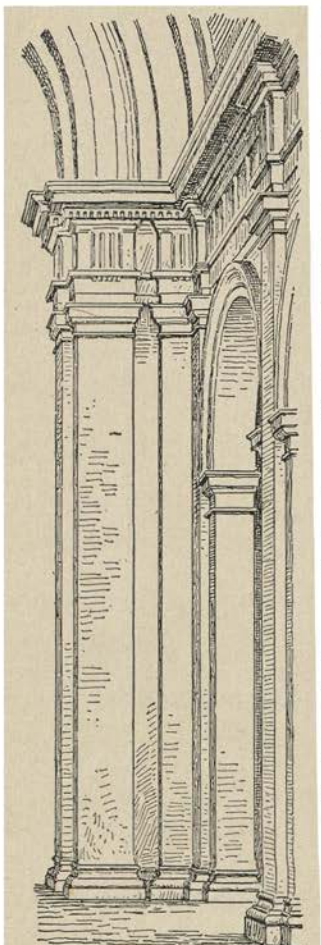


FIG. 47. — Order of Santa Maria degli Angeli.

The Gesù in Rome, another large church by Vignola, and built at about the same time as Santa Maria degli Angeli, is a

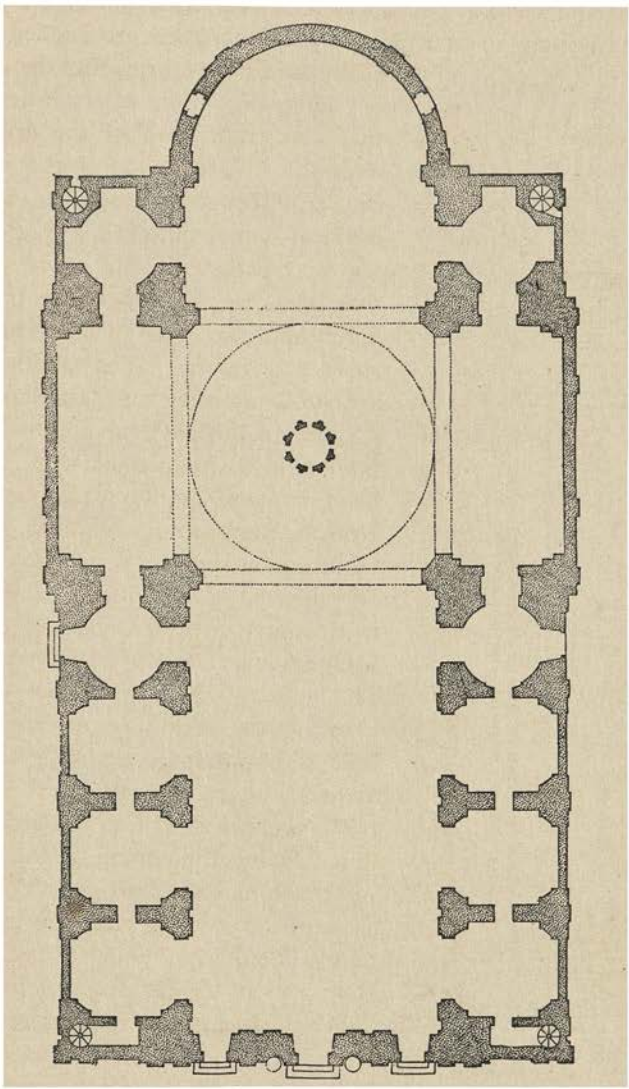


FIG. 48. — Plan of the Gesù.

variation of the same scheme, and shows in a more marked degree the influence of St. Peter's. A plan of this building, the intended façade which Vignola did not live to construct, and the

existing façade by Jacomo della Porta are given in the addendum to the edition of the architect's book on the Five Orders published in 1617 already referred to (p. 84), and are reproduced in Figures 48, 49, and 50. The aisles are omitted here so that the side chapels, which communicate with each other by narrow openings in the dividing walls, open directly out of the nave. The transept is short, and extends on either side beyond the nave only by the thickness of its walls. An elevated dome on pendentives, circular on plan within and octagonal on the outside, rises over the crossing, and barrel vaults cover the nave and transept arms. The side chapels are vaulted, with small domes on pendentives, except those in the angles of the crossing, which do not require pendentives because their supports are shaped to the circular form as shown in the plan, Figure 48. These supports are made heavier than the others in order to strengthen the crossing piers, which, in consequence of this reënforcement, do not need to advance so far into the space under the great dome as they otherwise would. In Santa Maria degli Angeli the aisles prevent this treatment, and the crossing piers extend far into the nave and narrow the spans of the crossing arches.

The scheme of the interior of the Gesù is a close reproduction of that of St. Peter's, though the great pilasters are of the composite, instead of the Corinthian, order, and other minor differences are noticeable. It is worthy of remark that the entablature has no ressauts except at the crossing, and the vaulting is raised upon an attic, so that no part of it is hidden from view by the cornice of the entablature, as it is in St. Peter's. It is also noticeable that, while capricious in the use of elements derived from the antique, Vignola in his church architecture eliminates mediæval forms more completely than most architects of his time. Where in St. Peter's, for instance, the apses have celled vaults on converging ribs, he employs the plain half-dome of Roman antiquity.

Vignola's design for the façade (Fig. 49) presents the familiar features of his style as already embodied in the earlier façade of St. Andrea, but with additional infractions of propriety, as well as of classic form in its more elaborate details. This façade corresponds in outline with the form of the building, except for the podium of the upper story (which contradicts

the roof lines of the side chapels), and the abutting walls of curved outline over the side compartments. The chief aberrations of detail are the broken pediments of the doors and windows, and

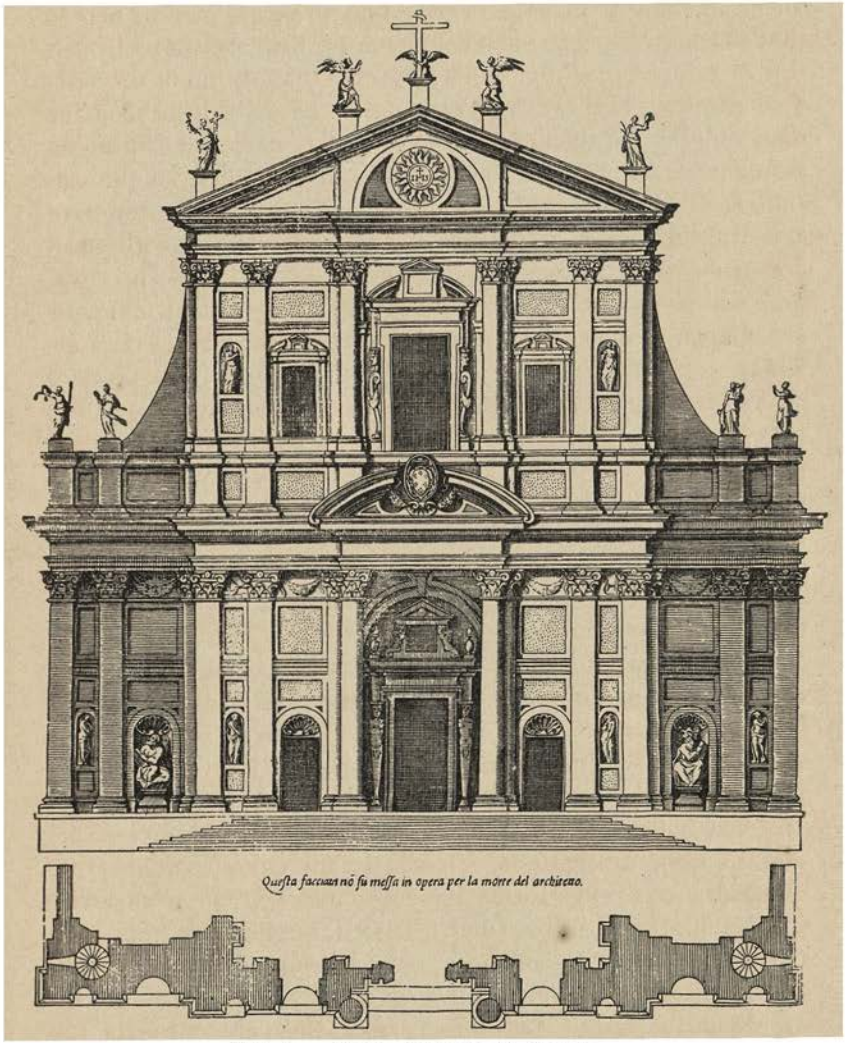


FIG. 49. — Façade of the Gesù, Vignola.

the barbaric scrollwork and hermæ, the use of which this architect did much to establish. How far the barbarism of breaking the pediment was an independent freak of the Renaissance I

do not know. Instances of somewhat similar treatment occur in the Roman architecture of Syria, as in Baalbek (Fig. 51),

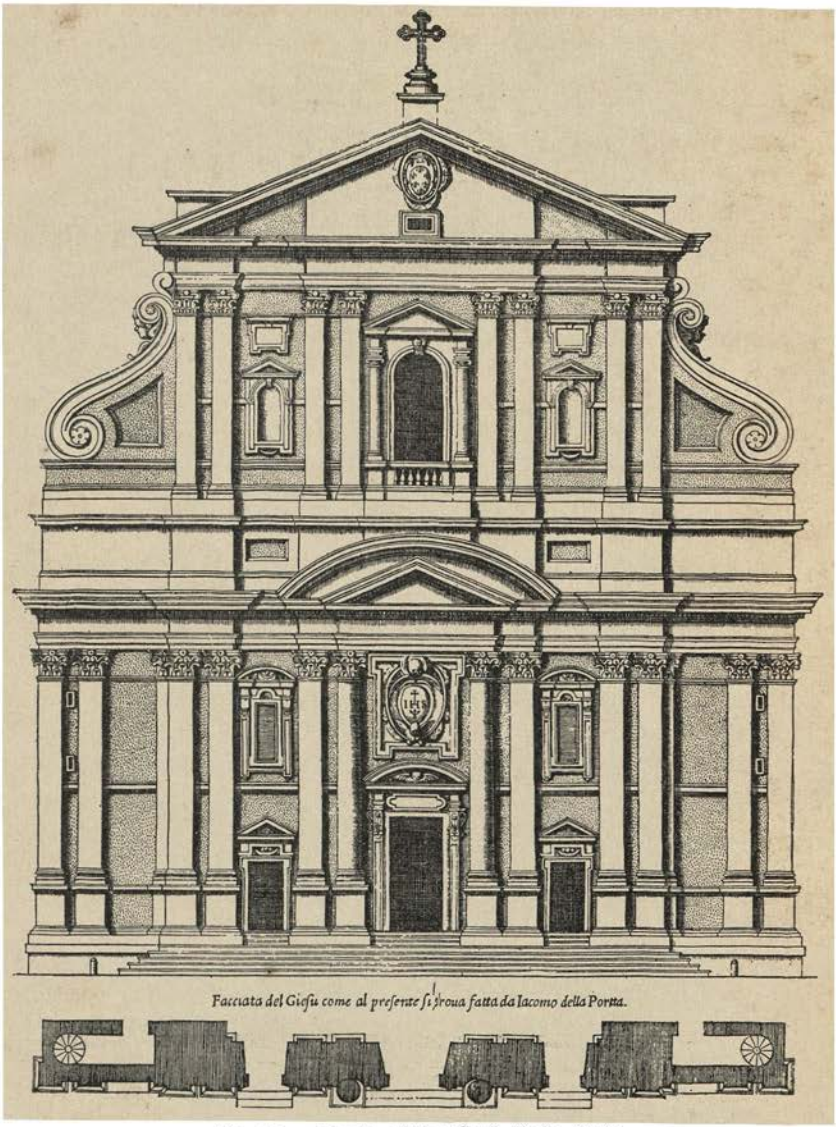


FIG. 50. — Façade of the Gesù, Della Porta.

where the middle part of the pediment is in retreat of the rest, so that the ends form ressauts. Of the complete removal of a

part of the cornice I know no instance in the Roman architecture of antiquity. To this, however, the architects of the later Renaissance were, in their desire for novelty of design, led. But the cornice of a pediment is, like the roof of an entire building, suggestive of shelter for the parts below. The actual necessity for such shelter may be slight, but any justification which the raking cornice has must be for expression, if nothing more, of a sheltering roof to what it surmounts (unless we are to assume that architectural design is a matter of purely fanciful composition of lines with no structural meaning or expression). To cut a piece out of the middle of it is an architectural solecism.

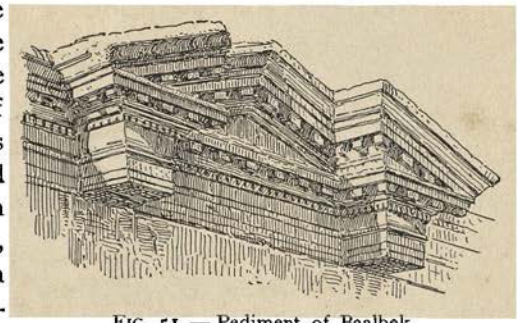


FIG. 51. — Pediment of Baalbek.

The actual façade by Della Porta (Fig. 50) follows the main lines of Vignola's design, but the details are much altered. The podium of the upper story is raised in height, reversed consoles are substituted for the plain curved abutments of Vignola, and the raking cornices of the small pediments are made whole. But other aberrations take the place of those which are eliminated, as that of placing one pediment within another over the central portal, and the ugly shapes and framings of the tablets and niches that break the wall surfaces. Della Porta had acquired these habits of design from his master, Vignola, and how far Vignola himself could go in such monstrosities is shown in some of the figures of his book already spoken of. Figure 52 from this book affords an instance.

If Vignola did much to make authoritative the later ideas of the sixteenth century as to the principles of ancient art and their application to modern uses, Palladio did even more. By the example of his numerous architectural works, as well as by his writings, the influence on modern art of this famous neoclassicist has been greater than that of any other architect of the Renaissance, so that we have, in the principal countries of Europe, a style of architecture which is known as Palladian.

Palladio was the first architect of the Renaissance who was not at any time either a painter or a sculptor. He begins his well-known book[1] as follows: "Guided by natural inclination, I began in my earliest years to devote myself to the study of architec-

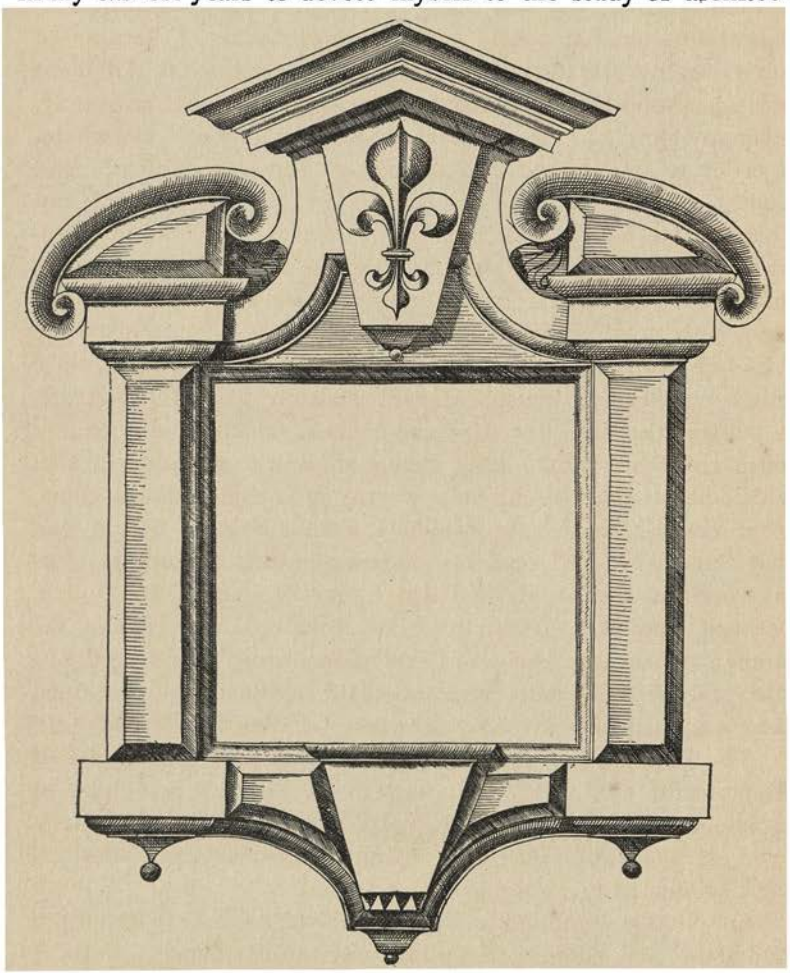


FIG. 52. — Tablet from Vignola.

ture, and having been always of the opinion that the ancient Romans were in building, as in many other things, far in advance of all those who came after them, I took for my master and guide Vitruvius, who is the only ancient writer on this art,

[1] *Quatro libri dell' Architettura di Andrea Palladio*, Venice, 1581.

and I set myself to the investigation of the remains of the ancient edifices which, injured by time and the violence of barbarians, are still extant. And finding them much more worthy of attention than I at first thought, I began with great diligence to measure most minutely every part of them. I became so ardent an investigator, not having known with what judgment and fine proportion they had been wrought, that not once only, but many times, I visited different parts of Italy and elsewhere, in order to understand and delineate them completely. And seeing how far the common manner of building differs from what I have observed in the ancient edifices, and read in Vitruvius, and in Leon Batista Alberti, and in other excellent writers since Vitruvius, and from that new manner which I have practised with much satisfaction, and which has been praised by those who profited by my work, it has seemed to me right, since man is not born for himself alone, but also to be useful to others, to publish the drawings of these edifices, which at the cost of much time and peril I have gathered; and to state briefly that which has seemed to me most worthy of consideration in them, together with those rules which I have observed, to the end that those who shall read my book may profit by such good as may be in it, and supply that which may be wanting (for much, perhaps, may be) so that, little by little, we may correct the strange abuses, the barbarous inventions, avoid the superfluous cost, and (what is more important) the various and continued deterioration which we see in so many buildings."

The implicit confidence of the neo-classicists in the art of Roman antiquity as the embodiment of all true principles of architectural design, and their unquestioning belief that mediæval art was wholly false in principle and barbaric in character, have seldom been more naïvely expressed.

Of church architecture by Palladio we have two important buildings, San Giorgio Maggiore and the Redentore, both in Venice. The first of these stands on the island of San Giorgio, opposite the Piazzetta, and is a characteristic Palladian design, though some parts of the west front may have been added after the architect's death. This church is cruciform, and has barrel vaulting with interpenetrations for light, and a dome on pendentives over the crossing. The piers are heavy, with a single engaged column of the composite order, raised on a high

pedestal, against each one, except at the crossing, where the columns are coupled with pilasters, while the wide archivolts rest on pairs of smaller pilasters of the Corinthian order, without pedestals (Fig. 53). Both columns and pilasters have strong entasis, and the frieze of the entablature is rounded in profile. In raising the great order on pedestals Palladio conformed more closely to ancient Roman practice than Michael Angelo and Vignola had done; but the pedestals have a clumsy effect thus ranged along the nave, and their sharp angles are in the way of moving crowds of people. It is noticeable, too, that Palladio has introduced complete orders under the archivolts, giving an entablature to each pair of small pilasters. The entablature had before been omitted in this situation. The whole scheme shows in a marked degree how inappropriate is the use of classic orders in a church interior. The application of such orders to a building with aisles and a high nave obliges the designer to make awkward combinations, and to violate true classic usage in

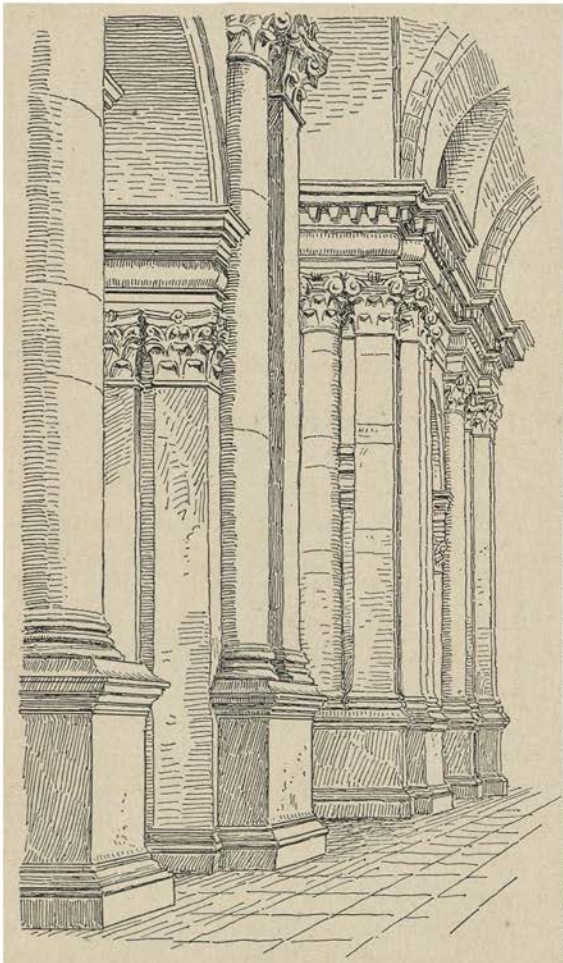


FIG. 53. — Orders of San Giorgio.

manifold ways, as we have already abundantly seen. He must associate large and small orders, and give them relationships and adjustments that belong to mediæval, rather than to classic, composition. The façade of this building (Fig. 54) has the merit of conforming in outline to the shape of the nave and aisles. It is the outline of the primitive Christian Roman basil-

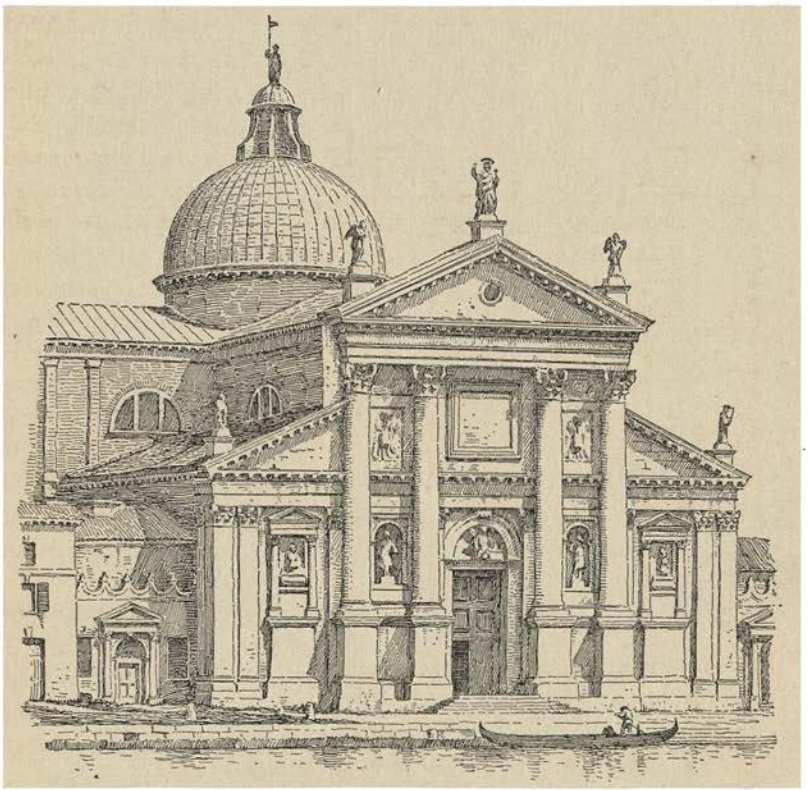


FIG. 54. — Façade of San Giorgio.

ica without any disguises in the way of reversed consoles over the aisle compartments, or divisions contradicting those of the interior. Instead of the superimposed orders of Vignola's west fronts, Palladio has here, in the nave compartment, one great order of engaged columns, on high pedestals, rising through the entablature of a small order of pilasters, which is carried across the whole front, reaching to the height of the aisles. The total scheme gives a suggestion of mediæval organic com-

position, but has no real organic character pertaining to the building.

In the façade of San Francesco della Vigna, also in Venice, and by the same architect, the design of San Giorgio is repeated, with some notable changes in detail. In this case the small order, as well as the larger one, consists of columns, except that on each angle a pilaster takes the place of a column, and both orders rise from the same level, the smaller one resting on a continuous podium, and the larger one on pedestals which are ressauts of the podium. The entablature of the small order is

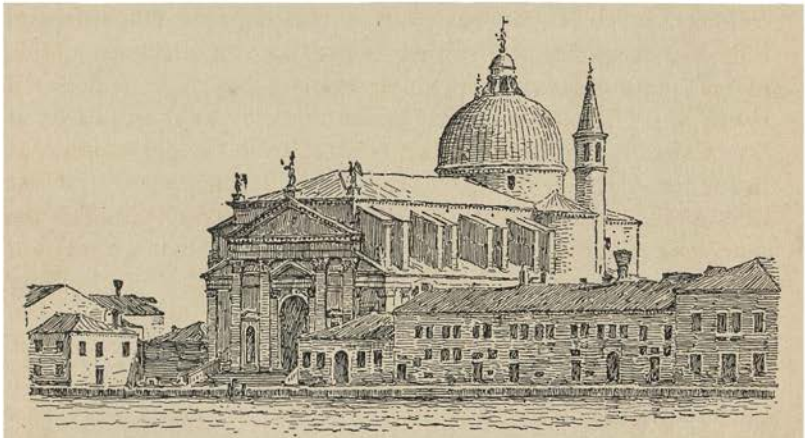


FIG. 55. — The Redentore, Venice.

here not continuous, but is broken by the nave compartment, though a fragment of it is inserted in the central bay of this compartment over the small columns that flank the portal.

The scheme of the Redentore differs from that of San Giorgio. It has no transept and no aisles, but in the place of aisles a series of side chapels. A square area in front of the sanctuary is covered with a dome on pendentives, while the nave has a barrel vault, and the side chapels have barrel vaults with their axes perpendicular to the axis of the nave. From the dividing walls of these chapels solid abutments in pairs are carried up through the lean-to roofs over the chapels to meet the thrusts of the nave vaulting, as shown in the general view of the exterior (Fig. 55). The plan of the east end is peculiar. A round apse opens out of the north and south sides of the

square covered by the dome, and a colonnade on a curved plan forming the sanctuary bounds this square area on the east side. Beyond this is an oblong enclosure the eastern wall of which is on a curved plan, and the sanctuary is flanked by small towers. The interior has a great order of Corinthian columns, one against each pier, resting directly on the pavement, and the small pilasters under the archivolts carry entablatures which extend to the outer wall and from them the barrel vaults of the chapels spring. The entablature of the great order is not set in the wall and broken by ressauts, to cover the columns, as in San Giorgio; but is carried by the columns, and thus overhangs the wall with a supporting corbel in the middle of each intercolumniation which forms a keystone to the arch beneath. The façade of the Redentore is a variation of that of San Giorgio with the pedestals omitted from the great order, as in the interior, and it has an attic behind the pediment like that of Vignola's small church of St. Andrea at Rome. Such is the nature of Palladian church architecture. We shall see more of Palladio's art when we come to the consideration of the later civil and domestic architecture of the Renaissance.

It is unnecessary to multiply examples of the church architecture of the Roman Renaissance, *i.e.* that architecture which derived its character primarily from the influences that were active in Rome from the beginning of the sixteenth century. For while the churches of this style differ considerably one from another in details, they agree essentially in architectural treatment growing out of a closer contact with ancient monuments, though with no strict conformity to them. Descriptions of minor differences in the forms of such buildings, and in the composition of their ornamental details, are tedious, and enough of them have now been given. We may, therefore, in the next chapter, pass on to the consideration of the palace architecture of the Renaissance.

63737

CHAPTER VI

PALACE ARCHITECTURE OF THE FLORENTINE RENAISSANCE

WHILE it was in church edifices that the neo-classic ideas in architecture were first embodied, it was in vast palatial houses that they were most extensively carried out. Early in the fifteenth century luxurious living began to prevail among the upper classes of society, and sumptuous private dwellings on an unprecedented scale were now erected in Florence. Magnificent palaces had, indeed, been built in the later Middle Ages which were among the chief ornaments of the mediæval towns; but those were civic monuments expressive of the communal spirit and artistic culture of their time. Such buildings as the Palazzo Vecchio in Florence, the Palazzo Pubblico of Siena, the Ducal Palace of Venice, and many others were the material manifestation of a state of municipal pride, and popular love of beauty and propriety in public monuments. Upon these buildings the best craftsmanship was lavished, while the dwellings of the most wealthy citizens were modest in scale, though often beautiful in design.

A fine example of an unostentatious, though dignified, house of a Florentine Patrician of the thirteenth century still extant is the Palazzo Mozzi. Its broad walled front of two stories over a high basement, with narrow string courses of simple profile and moderate projection, its well-faced and finely jointed masonry, and its plain window openings of the characteristic mediæval Florentine form in which the extrados is pointed while the intrados is round (Fig. 56), is a model of architectural simplicity, while it expresses the superior social station of its inmates. A few smaller houses of similar character as to quietness and simplicity of design, many of them suited to the needs of humbler citizens, have been preserved in some of the Italian towns. A few interesting examples of these may be found in Perugia. They have plain stone fronts, with simple

PALAZZO RICCARDI
Florence

string courses marking off the stories, and windows in some cases wholly round arched, in others having the extrados pointed with an ogee curve (Fig. 57).

But early in the fifteenth century vast structures for private use began to arise which rivalled in scale, and in costly splendour, the great civic monuments of the former time. The first of these larger palaces in Florence is the one now known as the Riccardi, designed by the architect Michelozzi for Cosimo de' Medici in 1430. It is a princely edifice, and though comparatively plain in general aspect, it is in many ways superior in architectural character to all of those which followed it. Like other buildings of its class it is in plan a survival of the ancient Roman house, having the form of a rectangle enclosing an open court. In elevation (Plate IV) it has two stories over

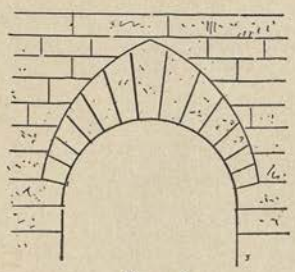


FIG. 56.

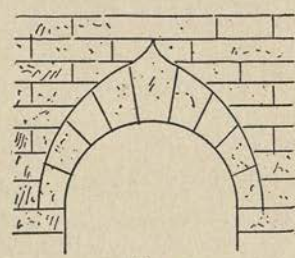


FIG. 57.

a high basement, and is grandly simple in design, and fine in its proportions. In buildings of this class there is no peculiar internal system which requires attention before the outside can be understood. The apartments have generally flat wooden ceilings, and where vaulting occurs, as usually in the basement and sometimes in the upper stories, it is of a kind that calls for no buttresses against the wall, the thrusts being met by the thickness of the walls, and by the weight of the upper stories. The façades of the Riccardi have no engaged orders, but the great cornice has classic profiling, and its bed mouldings have dentils and other classic details, while modillions of semi-classic form support the corona. The window openings are of thoroughly mediæval character in their larger features, and are each composed of a round arch embracing two smaller arches with a central shaft and jamb shafts, but the shafts have the tapering form with

entasis, and the *congé*, of classic design. The capitals are of nondescript form, with a channelled bell, an ovolo with egg and dart ornament, reversed Corinthianesque leafage depending from its angles, and a Corinthian abacus in each. The openings are uniform in each story, and their archivolts are treated in the mediæval Italian manner, the extrados being struck from a higher centre than the intrados. The graduated heights of the stories, and the varied treatment of the wall surfaces by rough-faced rustication in the basement, smooth-faced rustication in the principal story, and smooth close-jointed masonry in the top story, add much to the beauty of this finest of early Renaissance palaces. It is worthy of notice that here, as in the Italian domestic architecture of the Renaissance generally, the roof is not visible in a near view of the building, and no dormers or chimney-stacks appear. The conditions of climate did not call for a high-pitched roof, nor for any of those features that are naturally developed in the architecture of more northern countries. The general outline of the edifice is thus severely simple, and its agreeable effect is due to its fine proportions and arrangement of parts. It is noticeable, too, that the reveals are shallow on the outside, in marked contrast to the deep reveals of the later Renaissance architecture. This is not only conducive to quietness of effect, but it has the advantage of giving to the interior the maximum of light — since the farther out the glass is placed the less will be the shadow thrown upon it, while the internal reveal, especially when it is splayed, reflects light into the interior.

The interior court of the Renaissance palace has a vaulted arcade on each of its four sides beneath the overhanging upper stories. These arcades are, in the Riccardi (Fig. 58), supported on columns of classic form with capitals of a composite type, but of no great beauty. The arches spring directly from these capitals, and have classic profiles, while two string courses, with an interval forming a semblance of a frieze, give the effect of an entablature passing over the crowns of the arches.

The spacious apartments of these early Florentine palaces are generally fine in their proportions and simple in their architectural treatment. They are, however, rarely well lighted. The ceilings are at a great height above the comparatively low windows, and the windows are disposed for external effect, rather

than for convenience within. Thus while these apartments are stately, they are rarely adapted to cheerful indoor life, and in a northern climate they would be intolerably gloomy. When used, as they now often are, as galleries for the display of works of art, they do not serve well, very small portions of their vast wall spaces being well lighted, and the disposition of the openings often such as to produce embarrassing cross lights and reflections.

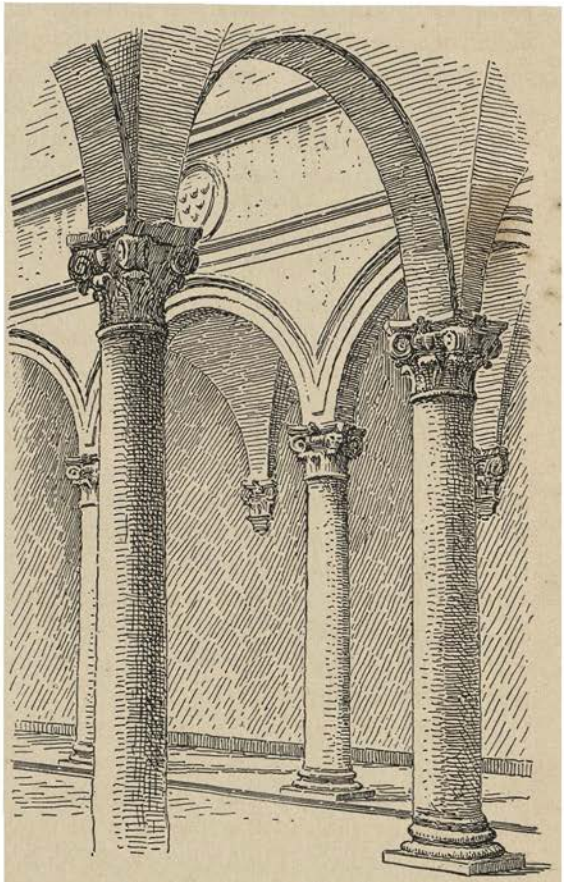


FIG. 58. — Court of the Riccardi.

Vasari tells us that "after Brunelleschi, Michelozzi was held to be the most consistent architect of his time, and the one who with best judgment planned either palaces, monasteries or houses." And concerning the Riccardi he adds, "All the more praise is due him since this was the first palace in Florence built in the modern manner, and which has a disposition of apartments both useful and beautiful."[1] He does not explain in what the superior planning of the Riccardi consists, and it is doubtful whether these remarks were based on any definite idea. But however this may be, the building is indeed a stately and

[1] *Le Vite*, etc., vol. 2, pp. 432–433.

magnificent one, of quiet aspect, and for the most part free from meaningless features.

Hardly any other one of the Florentine palaces of the Renaissance equals the Riccardi in beauty and dignity. That part of the Pitti which was begun by Brunelleschi in 1435, though equally free from meaningless features, is almost too bald to be called an architectural design. Each story of its long façade is as monotonous as the Claudian aqueduct which it closely resembles.

The front of the small palace called the Strozzino is in the style of the Riccardi, and is attributed to the same architect. It has but one story above the high basement, and the treatment is even more mediæval in character, the window arches having the pointed form.

The Palazzo Strozzi, begun in 1489 by Benedetto da Majano, follows the same general scheme as the Riccardi, but is less admirable in its proportions. Vasari tells us that Majano carried the exterior almost to completion, but that the court and the great cornice were the work of Simione Pollaiuolo, called Il Cronaca. This cornice, he says, was copied from an ancient model in Rome which the architect had drawn and measured with great exactness, but he had here enlarged the scale to suit the proportions of the building.[1] I think it may be said that he enlarged it too much, and that, in common with the cornices of most of these Renaissance palaces, it is too heavy. The Strozzi, more than any other of the palatial houses of its time, has the fortress-like character which indicates the turbulent condition of Florence in the fifteenth century. The vast basement of ponderous masonry, with no window openings near the ground, gives a gloomy and forbidding aspect to the front, and marks a survival of the savage habits of feudal life in this epoch of advanced Italian civilization and culture.

The Palazzo Pazzi, now known as the Quaratesi, is attributed to Brunelleschi, and has the marks of his style in the details of the windows. It has the same general scheme of design as the foregoing houses, and its stories are proportioned with the same pleasing gradation in their heights that we have noticed in the Riccardi; but the wall surfaces are different, being uniformly overlaid with stucco. A series of small circular openings, with

[1] *Op. cit.*, vol. 4, p. 444.

mouldings over the windows of the topmost full story, resembling those of the drum of the Pazzi chapel, seem to give further evidence of Brunelleschi's hand. Still another building in this style, though of even plainer external character, having small undivided openings, is the Palazzo Gondi, designed by Guiliano da San Gallo toward the close of the fifteenth century. The arcades of the court of the Gondi have Corinthian columns of great elegance, and the arches have ornamental keystones.

Another type of Florentine palace of the early Renaissance is exemplified in the Palazzo Guardagni, attributed to Simone Pallaiuolo. It has an open loggia at the top, and the portals and windows have the round arched form with the extrados pointed. This is a thoroughly reasonable and appropriate Italian style of domestic building, and if it had been consistently adhered to, without any admixture of the classic elements that were soon introduced, the domestic architecture of Florence in the fifteenth and sixteenth centuries might have merited our unqualified admiration. On the simple and appropriate scheme of the Palazzo Guardagni there was opportunity for such variations of disposition, proportion, and details as utility and taste might call for, without any resort to neo-classic elements.

The foregoing buildings, though larger and more elegant than the private houses of the Middle Ages, are still in their main features largely mediæval in character. But before the later buildings of this class were erected, another phase of design in palatial architecture arose in which the spirit of the Renaissance is more manifest in the application of the classic orders to the walls of the façades. This application, as is well known, occurs first in the Palazzo Rucellai, designed by the architect Alberti and built just after the middle of the fifteenth century. We have already (pp. 35–42) seen something of Alberti's use of classic orders in church architecture, and we have now to consider further the influences which were guiding the public taste as they are reflected in the works of the man who on the whole did most at this early epoch to establish the new architectural ideas. Alberti was a scholar and a man of high social station. Like most men of culture in Florence he had a taste for the fine arts, but, as Vasari tells us, he "applied himself not only to discover the principles and the proportions of antiquity, but also, being naturally so inclined, much more to writing than to prac-

tice."[1] The moving purpose with him was thus primarily archæological and literary, rather than artistic.

The Rucellai is in form substantially like the Riccardi and other buildings of its class, but in place of the plain wall sur-

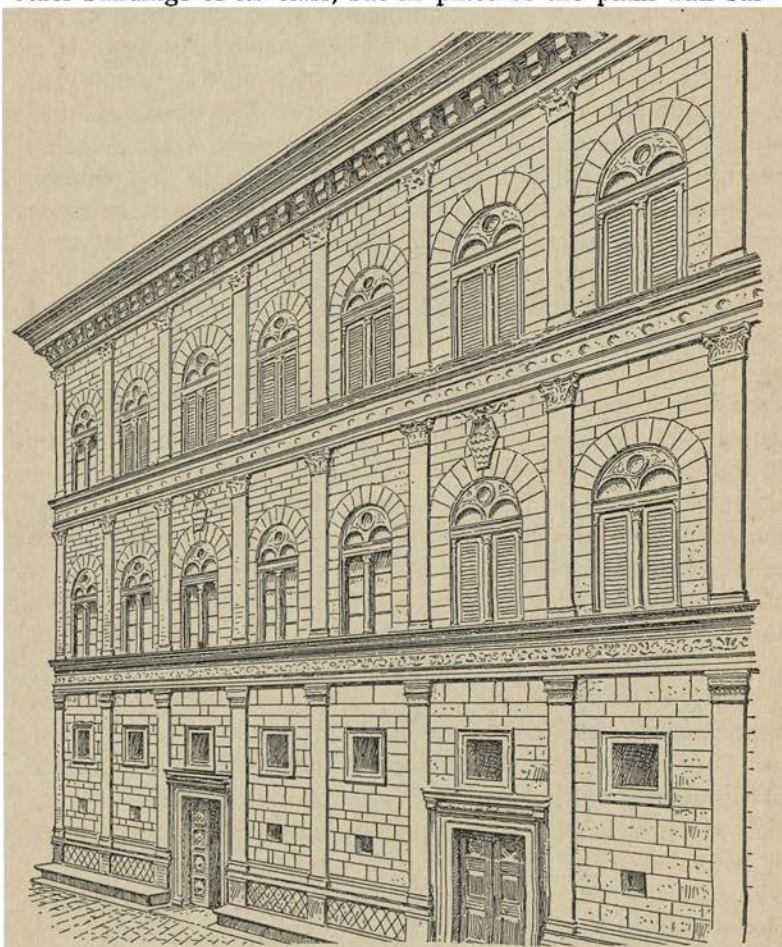


FIG. 59. — Façade of the Rucellai.

faces which are appropriate for a building that has no structural framework, we have an order of classic pilasters dividing the face of each story into bays answering to nothing in the real system of construction (Fig. 59). We thus have here in

[1] *Op. cit.*, vol. 2, p. 537.

domestic architecture an instance of that false use of the orders which in church architecture was first introduced in the chapel of the Pazzi. Alberti's classic tendencies are here shown further in the introduction of a diminutive entablature passing through the smaller arches of the windows, and these arches are merely cut in relief on a solid tympanum (Fig. 59). It is worthy of notice, too, that the rustication of the masonry of this façade does not mark the true joints. The blocks of stone are in many cases much larger than they appear, channels being cut upon them to simulate joints. The arch of one window, for instance, which by the rustication would appear to be made up of fourteen voussoirs, has in reality only three. The same lack of conformity of the simulated jointing with the true masonry joints is noticeable also in many parts of the façade of the Riccardi, and I know not how general this treatment may be in the architecture of the Renaissance.[1]

The initiative thus given by Alberti was not at once universally followed. The orders did not come into general use in the façades of domestic architecture until the period of the later Renaissance. The most important Florentine palaces of the latter part of the fifteenth century have, as we have seen in the Strozzi, no classic orders. The classic elements of these buildings are confined to details such as the profiling of cornices, and the introduction of dentils and other kindred ornaments, and to the capitals of court arcades.

Early in the sixteenth century a further innovation in the treatment of palace fronts was made in Florence by the Architect Baccio d' Agnolo, whose design for the campanile of Santo Spirito we have already noticed (p. 82), in the Palazzo Bartolini. This consisted in framing the windows with small orders crowned by pediments (Fig. 60). Milizia thus refers to this innovation: "This was the first palace with windows adorned with frontispieces and with columns at the doorway carrying architrave, frieze, and cornice. A novelty, like most others, at first disapproved and then idolized. The Florentines all ridiculed Baccio for this new style of architecture, not only with words, but with sonnets, and with jesting devices attached to the building, taunt-

[1] I believe I am correct in this. Photographs seem to show it clearly, but I have not verified this point in the monuments themselves.

ing him with having made a church of a palace."[1] For the rest, though Baccio d' Agnolo has not adorned the walls of this building with orders, he has marked the stories with entablatures, and placed rusticated pilasters at the angles.

As time went on the spirit of display in domestic architecture increased. Buildings like the Riccardi owe their admirable character largely to their moderation. The well-known remark of Vasari[2] that Cosimo de' Medici had rejected a scheme for that building which had been prepared by Brunelleschi on the ground that so sumptuous a dwelling for a private citizen might excite envy, indicates the more modest feeling and sense of fitness, which as yet held in check the spirit of ostentation. But the boast of Filippo Strozzi that he would make his great palace excel all others in magnificence betrays the ambition that governed the later builders of the great houses of the Renaissance.

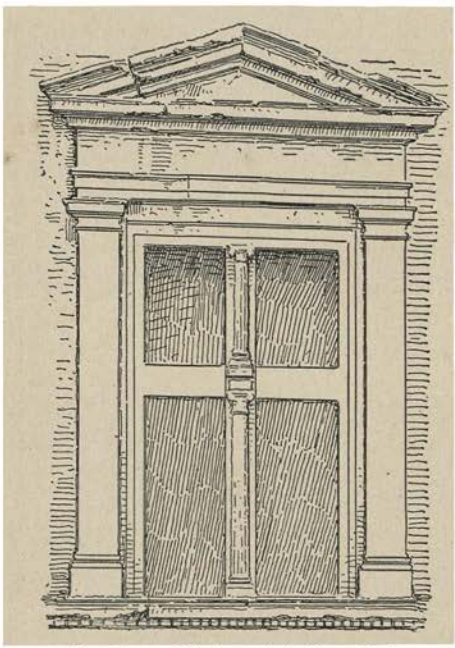


FIG. 60. — Window of the Bartolini.

By the beginning of the sixteenth century the vigour of the Florentine Republic was spent, and its artistic ascendency was declining. Lorenzo de' Medici had died, and the chief seat of artistic activity was, as we have already seen, transferred to Rome where the conditions were very different from what they had been in Florence during the earlier time. Ideals and aspirations were further changed, and the quest of material splendour was more than ever stimulated under the mundane ambitions of a luxurious and profligate society. Thus it was that in connection with the later neo-classic church architecture already considered there arose a corresponding movement in the erection

[1] *Op. cit.*, vol. 1, p. 240. [2] *Le Vite*, etc., vol. 2, p. 433.

of sumptuous palatial houses, though still for some time palatial architecture retained much of the earlier moderation in design. The great Roman houses of the early part of the sixteenth century have a dignity and grandeur that go far to redeem their incongruities. It was not, as we shall see in the next chapter, until men like Sansovino, Vignola, and Palladio appeared that the Roman influences bore their full fruit.

CHAPTER VII

PALACE ARCHITECTURE OF THE ROMAN RENAISSANCE

AMONG the first of the great Roman palatial houses of the Renaissance is the so-called Cancelleria, which together with the Palazzo Girand Torlonia of similar design, has been attributed to Bramante. The building is believed, however, to have been begun before Bramante had settled in Rome, but it is not impossible that he may have had a hand in its design and construction at a later time while he was at work on the church of St. Peter. Some ground for belief in his authorship of the façade is found in some of its leading features which resemble, on the one hand, those which are characteristic of the early Renaissance architecture of the north of Italy, where Bramante received his early training, and on the other, the work of Alberti under whose influence it is reasonable to suppose that he had come while in Mantua. The north Italian features[1] are the windows of the principal story (Fig. 61), which are undivided and flanked with pilasters carrying archivolts surmounted with cornices on panelled spandrels, and the disks in the wall over the windows, while the features bearing likeness to the work of Alberti are the orders of pilasters applied to the walls, as in the Rucellai of Florence. But Bramante, if this be his design, has gone a step farther in conformity with the Roman antique in introducing a podium beneath each order, as in the Flavian Amphitheatre. He has also extended Alberti's arrangement of the pilasters of the clerestory of Santa Maria Novella, setting them in pairs across the whole front instead of spacing them equally. He thus established a mode of treatment that was afterwards extensively followed, with many variations, in palatial façades. Among Renaissance innovations in the use of the orders this is one of the most marked. In ancient Greek usage the columns of an order were equally spaced, save in

[1] Cf. p. 144.

exceptional cases where the central intercolumniation is considerably widened to give a more ample passageway, as in the Propylæa at Athens. The Romans, in their triumphal arches, increased the width of the central space, but no other inequality of spacing is common in ancient art.

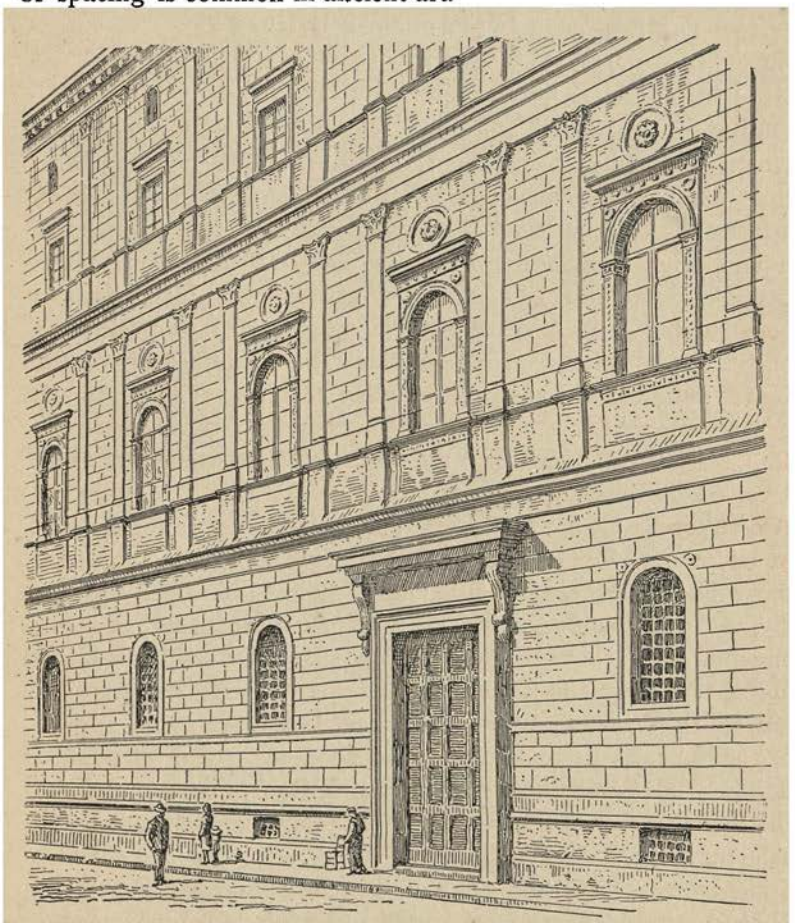


FIG. 61. — Façade of the Cancelleria, Rome.

The façade of the Cancelleria has a feature that is not common in Italian architecture, that of a slight advance of the wall at each end, so as to form projecting bays, as in the pavilions of the French Renaissance châteaux. The salience of these bays is very slight, however, and is hardly noticeable in a general

front view. The scheme of the upper façade resembles that of the Rucellai very strikingly, save in the points just noticed; but the basement is different, having no order, its rusticated wall being unbroken except by the portals, of which there are two, and a series of small arched window openings. Only one of these portals belongs to the original design. This one, shown in the illustration, is of stately magnitude and fine proportions. Its jambs and lintel are profiled with severely classic mouldings, and it is crowned with a cornice on consoles with a frieze between it and the lintel. It is an amplification of Alberti's portals in the Rucellai, and is of almost Greek purity of design, though it differs from a Greek portal in the more pronounced character of its cornice, in the introduction of the frieze, in the greater development of the consoles, and in its vertical jambs, which in Greek design would incline inward. A comparison with the portal of the Erechtheum will illustrate the points of likeness and of difference. The other portal appears to be an interpolation of a later time. An order of Doric columns framing an arch is set against a double order of Doric pilasters, the whole supporting a balcony, and forming a scheme characteristic of the later Renaissance.

The court of the Cancelleria has an arcade of two vaulted stories. These arcades support the overhanging upper story and attic, both of which are embraced by a single order of pilasters not arranged in pairs, as in the external façade, but evenly spaced.

In Rome as in Florence many of the great palaces are without engaged orders dividing the wall surfaces into bays. The Palazzo Massimi, for instance, the next one of importance, designed by Baldassare Peruzzi, and dating from the early part of the sixteenth century, has an order on the basement story only, while the wall above is unbroken even by string courses. In conformity with the line of the street on which it stands, the façade of the Massimi is curved on plan. A wide recessed portico (Fig. 62) gives a reason for the introduction of a free-standing Doric order, and in continuation of this order, an order of engaged Doric pilasters is ranged along the basement wall on either side. Both columns and pilasters are here again placed in pairs, the narrow intervals being narrower than in the Cancelleria, and in the portico the interval on the axis, opposite

the portal, is wider than the other wide ones, while at each end a column is necessarily paired with a pilaster. The plain wall of the upper stories is uniformly rusticated and smooth-faced. The windows of the principal story are framed with mouldings of quiet classic profiling, have simple cornices on consoles, and are ranged on a podium with a ressaut under each window.

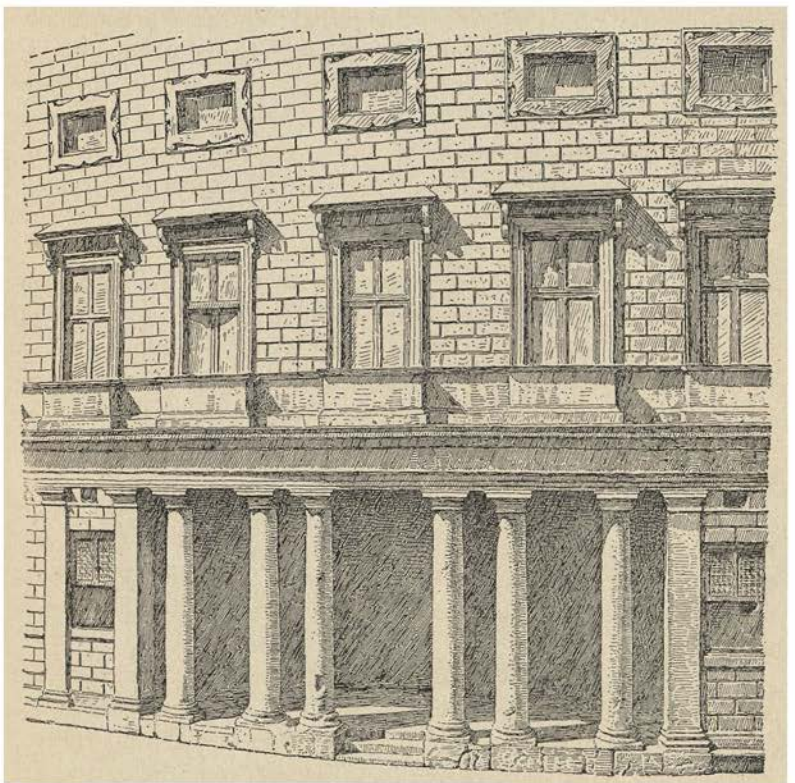


FIG. 62. — Portico of the Massimi, Rome.

Above are two tiers of small oblong rectangular windows with cartouche frames. The details of this façade have great refinement, and show the influence of Alberti. The Roman Doric order of the portico has much simple beauty. The entasis of the columns is more moderate than is common in later Renaissance design, and the light falls on their rounded surfaces, as they stand relieved against the dark void of the porch, with admirable effect. The façade as a whole is monotonous, but it

has an expression of architectural reserve that is worthy of praise.

The façade of the Palazzo Farnese, by Antonio da San Gallo the younger, the grandest of these Roman palaces, again has its wall surfaces unencumbered with orders. The basement is comparatively low, and all three stories are in effect of nearly equal height. The walls are of brick with rusticated quoins of stone, and a rusticated stone portal in relief, of the simple early Florentine type, occupies the centre of the basement. The quoins suggest the influence of the rusticated pilasters on the angles of the Bartolini palace in Florence, and San Gallo has followed Baccio d' Agnolo, the architect of the Bartolini, further by introducing small orders with pediments to frame the windows of the upper stories. But for pilasters he has substituted engaged colonnettes on high pedestals, and in the principal story has made angular pediments alternate with curved ones. This mode of designing doors and windows has since become so common that it generally passes without question of its propriety. It is, however, justifiable only on the principle, universally accepted by the architects of the Renaissance, that structural members may be used for ornamental purposes without any structural meaning or expression in harmony with the character of the building to which they are applied. But this is a principle which finds no support in any thoroughly noble system of architecture — Greek, Byzantine, or Gothic. Structural members may be used properly enough with a primarily ornamental purpose when they have a character in keeping with the real structural system in which they are used. The blind arcades, and shafted archivolts of the portals, of Romanesque and Gothic architecture, are largely of this nature;[1] but to surround the windows of a walled structure, like the Farnese, with columns and entablatures applied to the surface of the wall, is an architectural solecism. A further barbarism occurs in the windows of the top story, which are said to have been designed by Michael Angelo, and the fact that they are like the upper windows of the church of St. Peter lends support to the attribution. These windows of the Farnese are arched, and the crowns of the arches rise above the capitals of the flanking colonnettes so that

[1] These ornamental features usually have, however, in Gothic art some real structural function.

an entablature resting on these capitals cannot pass over them. Complete entablatures are therefore omitted, entablature blocks being set upon the capitals to support the raking cornices of the pediments (Fig. 63). This makes a bad composition, because the structural system simulated would in reality be an insecure one in consequence of the absence of a tying member which the entablature should form in such a scheme. The eye instinctively feels that the pediment cornices are tending to thrust so as to overthrow the supporting colonnettes. It is true that in the windows of the principal façade (the figure is taken from a window on the side of the building) the cornice of the entablature block is returned against the wall over the arch; but this is so far in retreat, and so inconspicuous, that it does not properly complete the pediment triangle. Precedents for many of these Renaissance aberrations of design may be found in ancient Roman art, and this particular one is foreshadowed at Baalbek, where in the pediment already noticed (p. 95) the entablature, as well as the raking cornice, is broken, the middle part being set back in the plane of the wall, and the parts over the supporting pilasters forming ressauts. But I know of no ancient instance in which the entablature is completely removed between the ressauts, unless the one figured by Serlio [1] (reproduced in Fig. 64) be ancient. He does not say that it is, but he describes it among other things that he calls ancient, and says that he found it between Foligno and Rome, and that it exhibits an architectural license because the architrave is broken by the arch.

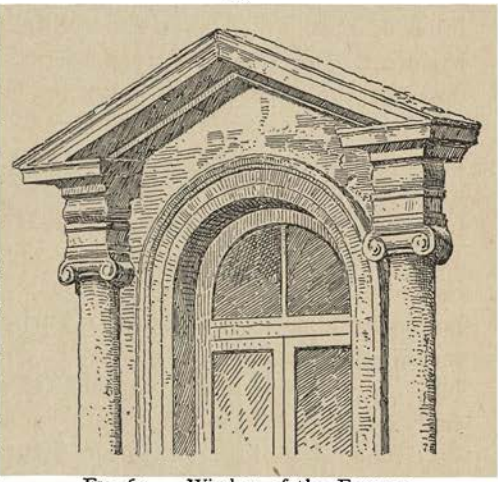


FIG. 63. — Window of the Farnese.

In the court of the Farnese we have a frank return to the

[1] *Op. cit.*, bk. 3, p. 53.

ancient Roman combination of arch and entablature, with a Doric order in the basement, an Ionic order next above it, and an order of Corinthian pilasters in the top story. Where engaged orders are thus used in the inside of a rectangle it is usual to set a section of a pilaster in the angle, as the architect has done here. But the treatment of the capital in this angle becomes a matter of difficulty which cannot be overcome in an

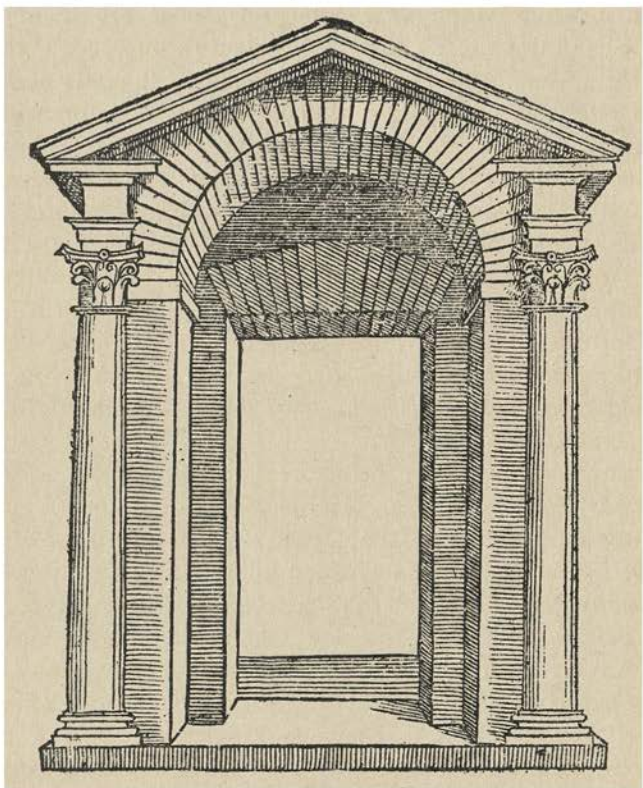


FIG. 64.— Portal from Serlio.

entirely satisfactory manner. This is especially the case where the Ionic order is used, as in the principal story of this court. It is necessary here to have parts of two capitals, on the angle strip of pilaster, in order that there may be a bolster on each side parallel with those of the other capitals in the colonnade to which it belongs, and a volute on each side facing in the same direction as the others in the same series. Thus two

volutes have to be mitred together with awkward effect. A further awkwardness arising from this misuse of the orders is that of bringing three supporting members together in the angles, the end column of each adjoining colonnade, and the pilaster set in the angle in which they meet.

An earlier instance of the Roman arch and entablature scheme applied to a continuous arcade occurs in Rome in the cloister of Santa Maria della Pace, the design of which is attributed to Bramante. The upper story of this arcade is worthy of notice as having a rhythmical scheme, such as is common in mediæval design, wrought into the neo-classic composition. This story has no arches, but a simple entablature is carried on square piers rising over the piers of the ground story, with a pilaster on the face of each, and in each interval is a small round column rising over the crown of the arch below. But this alternation of large and small, and compound and simple, members has no meaning apart from that of ornamental effect. In mediæval design, the larger members would have the function of supporting heavier weights, and the rhythmical arrangement would thus have a primarily structural meaning.

After the early part of the sixteenth century Italy, as before remarked, produced few architects of a high order of genius. The later architecture of the Renaissance is the work of men of little genuine artistic inspiration, though many of them had great enthusiasm for what they conceived to be the true principles of the art and unbounded zeal in its practice. A few typical examples of the later forms of palatial design by such men as Sansovino, Sanmichele, Vignola, Palladio, and Scamozzi will be enough for us to consider. All of these men based their practice theoretically, as we have seen, on the writings of Vitruvius and on a rigorous study of the architectural remains of Roman antiquity; and nearly all of them wrote treatises on their art which have formed the basis of most modern practice.

Jacopo Tatti, called Sansovino, went to Rome early in the sixteenth century in company with Giuliano de San Gallo, and there formed a friendship with Bramante,[1] under whose influence he acquired that exclusive predilection for classic

[1] *Milizia*, vol. I, p. 346.

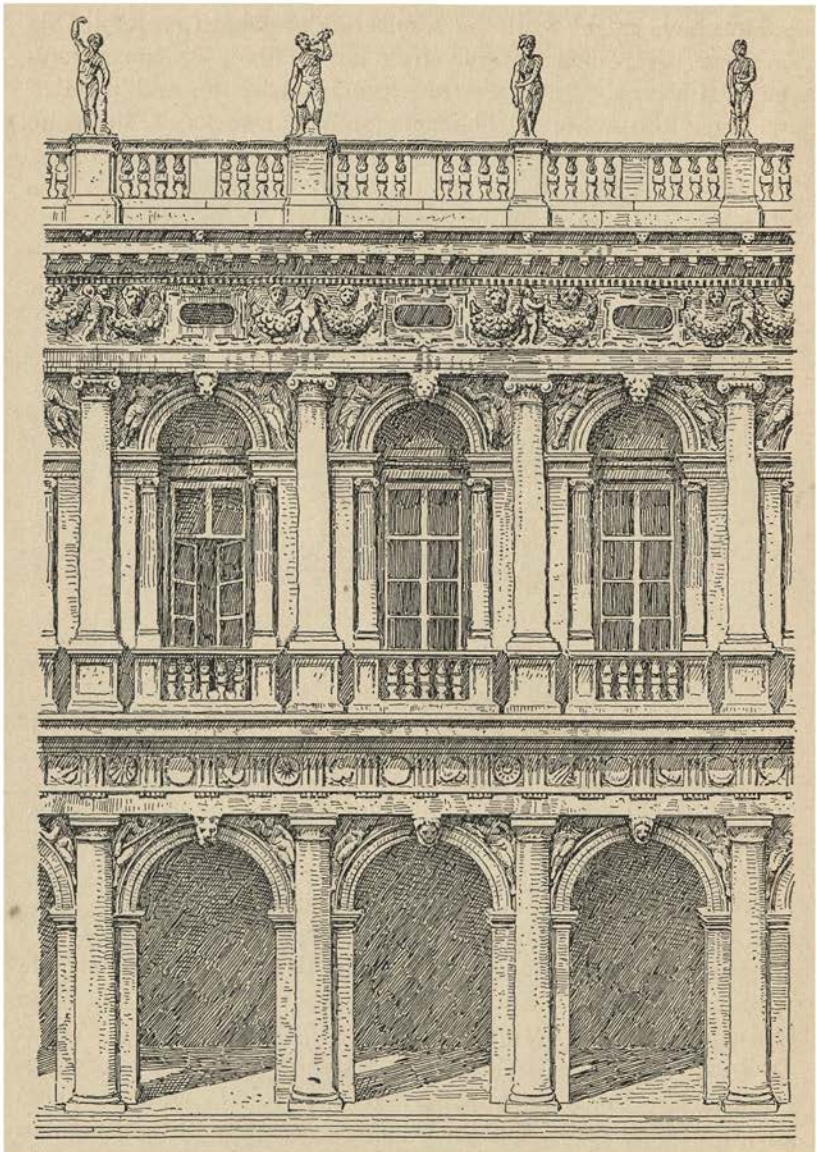


FIG. 65. — Part of façade of the Library of St. Mark.

forms which we find reflected in his art. Coming to Florence, we are not told in what year, he designed a false front of wood for the cathedral church of Santa Maria del Fiore, which is

said to have called forth the admiration of Pope Leo X.[1] This incident is significant of the spirit of the time, and such architectural shams were extensively produced by the architects of the later Renaissance. The most important works of Sansovino are in Venice, where he built the well-known Library of St. Mark, the so-called Loggia of the Campanile, the Palazzo Cornaro, and several other large buildings.

The façade of the Library of St. Mark has but two stories including the basement, and these are adorned with a Doric

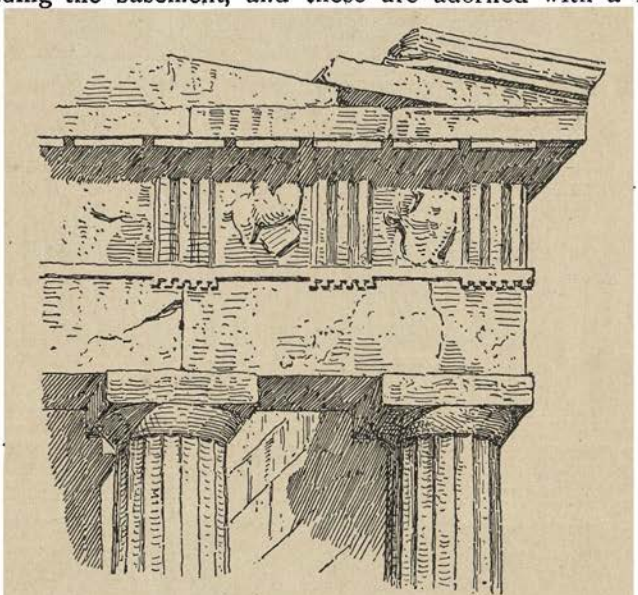


FIG. 66.—Corner of the Parthenon.

and an Ionic order respectively (Fig. 65); the first noticeable peculiarity of this design is its very florid character. The reveals are deep, the orders are in high relief, and the friezes and arch spandrels are loaded with showy ornamental carvings. Milizia says[2] that in the Doric order of this façade Sansovino attempted to solve a problem which had troubled all of the Italian architects, namely, how to make exactly half of a metope fall at the end of the frieze. The Greeks had placed a triglyph at the angle, but in so doing they had been obliged to sacrifice uniformity, since this angle triglyph fell over one

[1] *Milizia*, vol. I, pp. 346–347.

[2] *Ibid.*, p. 351.

side of the corner column, instead of over its centre as the other triglyphs of the series did (Fig. 66). This had made it necessary to lengthen the last metope, and to narrow the last intercolumniation. The Romans had set the last triglyph over the centre of the corner column, and had thus been obliged to give less than half a metope to the corner (Fig. 67), though they secured uniformity in all the rest of the parts. The frieze, however, had now an appearance of incompleteness at each end, as of a thing cut off arbitrarily through one of its members. The architects of the Renaissance appear to have disliked this narrow section of a metope at the end of the frieze, and to have sought a way to make it exactly half. This, as Milizia tells us, Sansovino did in the Library of St. Mark by lengthening the frieze enough to give the fragment of metope the width that was desired. Turning to the design itself (Fig. 68), we find that this obliged him to set a square pier with a pilaster on its face at the angle. Of this device Milizia remarks that it was a folly.[1]

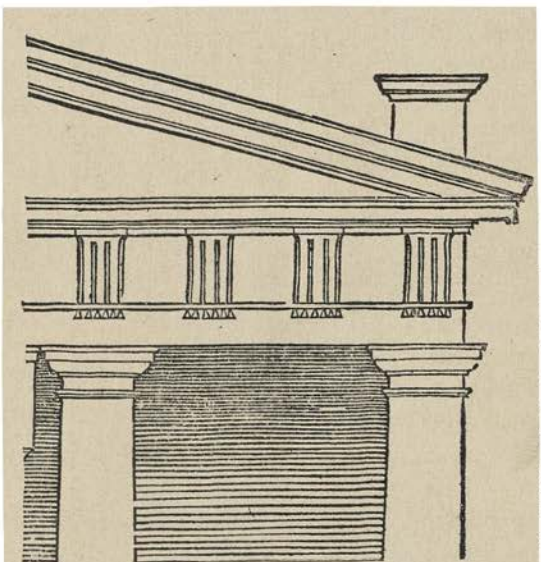


FIG. 67. — Roman corner.

In the general scheme of this façade (Fig. 65) Sansovino has followed that of the ancient theatre of Marcellus, with a free introduction of additional enrichments. In the order of the basement he has departed from the severe plainness of the Roman model by adding mouldings and keystones to the archivolts, reliefs to the spandrels, and disks to the metopes

[1] "Sansovino lo sciolse con allungar il fregio quanto bastasse per supplire al difetto di quella porzione di metopa: ed il problema, e 'l ripiego sono un' inezia."

of the frieze. But all this is done with a commendable feeling for breadth of effect. To the order of the upper story he has made more striking additions, the most noticeable of which is the insertion of a small free-standing column on each side of the pier to bear the archivolt, an innovation which was followed by Palladio and many later architects. The least admirable features of the design are the frieze of the upper order, which is widened beyond all tolerable proportion, and an ornamental balustrade over the main cornice. The frieze is ornamented with inelegant festoons in high relief, and pierced with oblong windows opening into a low upper story which the entablature encloses. The columns of the upper order, as well as the free-standing colonnettes, are raised on panelled pedestals, and balustraded balconies are formed in front of each window opening. This sumptuous scheme embodies very fully the ideal to which the designers of the Renaissance had been tending under the Roman influence of the sixteenth century, and it has been extensively reproduced, with various minor modifications, in the civic architecture of all parts of Europe.

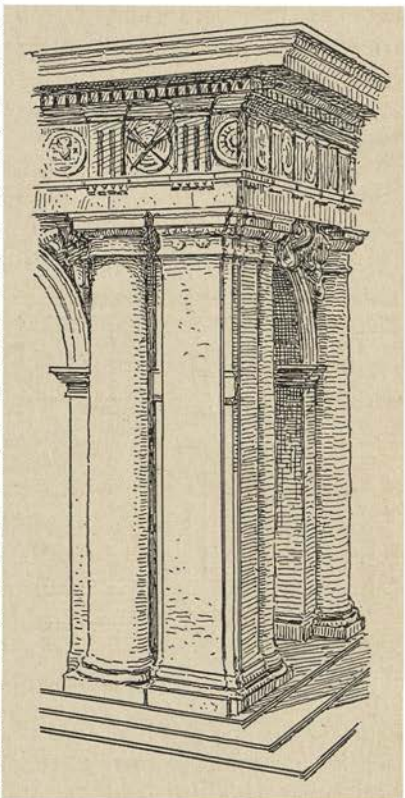


FIG. 68. — Angle of Library of St. Mark.

As the façade of the Library of St. Mark is based upon that of the ancient theatre of Marcellus, so the Loggetta of the Campanile is an adaptation of the scheme of the Arch of Titus extended to include three arches, and enriched with statues and reliefs to suit the florid fancy of the time. But while the scheme is plainly derived from the Arch of Titus, the proportions of the parts are very different, and much less admirable.

The order is made lower and the attic higher. The Arch of Titus is the finest in proportions of all the Roman triumphal arches, and the grandest in monumental simplicity. Sansovino's changes and ornamental additions spoil the composition, and do not fit the design for the building to which it is attached. Such a design could not have any proper relationship to such a building. To attach any sort of a Roman triumphal arch scheme to the base of a mediæval tower is an architectural absurdity.

FIG. 69. — Palazzo Cornaro.

In the scheme of the Palazzo Cornaro an Ionic order and a Corinthian order frame in the round-headed windows of the upper stories. The columns of these orders are set in pairs, each pair having a plinth and pedestal in common. On the side walls of the building these orders are returned to the extent of one bay, which brings four columns together at the angles with clumsy effect. The frieze of the uppermost entablature is widened, as in the Library of St. Mark, but its surface is plain save for a series of oval openings which light a low attic. The high rusticated basement, which includes a mezzanine, has square-headed windows framed by a rusticated Doric order resting on a projecting sill supported on plain consoles; and over each of these a low rectangular window, flanked by elongated consoles on square blocks set upon the entablature of the window below, lights the mezzanine. A curved pediment over each of the lower windows, between the blocks that support the flanking members of the windows above, gives further awkwardness to the total scheme (Fig. 69). Barbaric compositions such as this were now to become of frequent occurrence in the architecture of the later Renaissance. While the designers were eliminating the mediæval forms more completely

than their predecessors had done, they were at the same time departing more widely from classic models, and introducing many monstrosities of composition, from the influence of which modern art has greatly suffered.

The works of Sanmichele show an equally exclusive employment of classic features, with the same freedom in deforming them and using them in novel and ungainly ways. In the Porta del Palio of Verona, a characteristic example of his work, he has used a pseudo-Doric order in which the columns are fluted after the Ionic manner with fillets between the channels, and are raised on heavy square plinths. The columns are dis-

FIG. 70. — Two bays of the Porta del Palio.

posed in pairs, dividing the façade into three wide intervals and four narrow ones (Fig. 70), and each wide space has a large rectangular recess spanned by a flat arch, with a sculptured keystone in the form of a console, under the entablature of the order. At the level of the soffit of this arch the wall is crowned by a cornice passing behind the columns. The central bay has a large rectangular portal without jamb mouldings, and in each lateral bay is a small doorway framed with classic jamb mouldings and a pediment on consoles. Over each of these openings is a secondary flat arch with deep voussoirs reaching to the soffit of the upper one. Pilasters take the place of columns on the angles of the façade, and the walls are rusticated. In

the façade of the opposite side the scheme is varied, and is plainer. The columns of the order are disposed as before, but instead of being fluted they are rusticated like the walls, and have no bases, while a large round-arched opening, with impost mouldings and a plain keystone, fills each wide interval.

Of Sanmichele's palace fronts the best in Verona is, I think, that of the Palazzo Canossa, where over a high rusticated basement he has placed a shallow order of Corinthian pilasters in pairs, set close together, on a podium with ressauts. This order embraces both the principal floor and a low story above it, and has considerable elegance. The effect of the whole front is broad and quiet, save for the heavy balustrade with showy statues which crowns it. It will be seen, as we pass in review these different compositions, that the range of eccentricities of design embodied in them is as great as we find in the works of the earlier Renaissance, though they show fewer mediæval characteristics. The Palazzo Pompei alla Vittoria, also by Sanmichele, for instance, has a Doric order over a plain rusticated basement, like that of the Porta del Palio, but with the columns equally spaced, except that the central intercolumniation is made wider than the others in conformity with the width of the portal beneath it, and a pilaster is coupled with a column on each angle. Plain round-arched windows occupy the intervals between the columns, and a corbel in the form of a sculptured head is set under the entablature of the order over the crown of each arch. The plain windows of the basement have clumsy rectangular sills on consoles.

A more elaborate design by the same architect is that of the front of the Palazzo Bevilacqua (Fig. 71). Here an order of rusticated Doric pilasters, supporting an entablature with channelled consoles in the place of triglyphs, and a cornice surmounted with a balustrade forming a balcony to the story above, divides the basement wall into alternately wide and narrow bays. A round-arched window in each bay has a heavy keystone in the form of a sculptured bust, which forms at the same time a corbel to the entablature. The unequal spacing of the pilasters leads to an awkward irregularity in the spacing of the channelled consoles which do duty as triglyphs in the frieze. One of them is set over the centre of each pilaster, and the spaces over the wide intervals each give place to three of

them, while over the narrow intervals there is too much room for one and not enough for two. The designer has chosen to have but one, and the effect of the resulting wider spacing over the narrow bays is both unpleasant and unclassic. The upper story has a still more barocco character. A Corinthian order with columns of alternately straight and spiral channelling, spaced in conformity with the pilasters of the basement and raised on pedestals, frames in a series of round-arched windows which are alternately large and small in correspondence with the magnitudes of the intervals. The window of each wide bay nearly fills the space enclosed by the order, and a keystone in the arch forms a corbel to the entablature, while the spandrels are adorned with sculptures in high relief after the manner of those of the Roman triumphal arches. Over the smaller arch in each narrow bay the spandrels are in relief and are crowned with a pediment surmounted by a horizontal cornice on a shallow ressaut corresponding to that of the spandrels, while over all this a plain oblong rectangular opening lights a low top story which is not otherwise expressed in the composition. In these narrow bays the corbels are introduced under the entablature

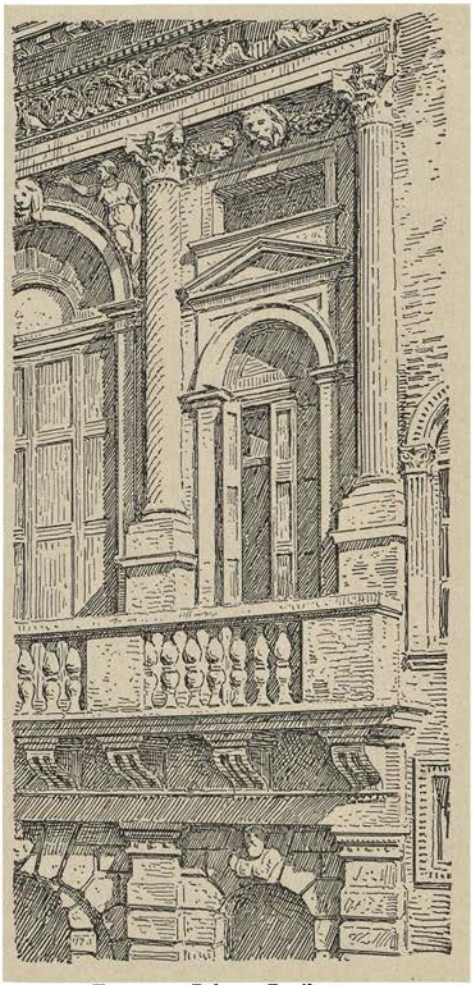


FIG. 71. — Palazzo Bevilacqua.

as in the wider ones, and carved festoons fill the spaces between them and the capitals on either side. It is a capricious scheme, by which the designer has sought to quicken the jaded sensibilities of people surfeited with architectural aberrations. Of course the arrangement of these elements is based on a certain rhythmical order which often appears to be thought a sufficient justification of such meaningless compositions; but order and rhythm do not alone constitute a fine work of art.

Of the secular architecture of Vignola the Palazzo Caprarola, in the hill country between Rome and Viterbo, is the most important. This building, says Milizia, "is without doubt the grandest and the most beautiful work of this great artist."[1] The building, which is illustrated by elaborate drawings in Vignola's own book, has in plan the form of a regular pentagon enclosing a circular court. The form is, of course, given from pure caprice, and imposes needless difficulties, as if with the sole purpose of ingeniously solving them. The basement, with a salient fortress-like bastion on each angle, is in two stages, of which the lower one has a batter wall. Over this are the principal story of the state apartments, and two other stories containing upward of eighty sleeping chambers. Slightly projecting bays are formed on the angles, as in the Cancelleria at Rome, and each façade is divided into two stages by superimposed orders of pilasters on high pedestals. The projecting bays have rusticated quoins instead of pilasters, and the wall of the first story of each of these bays is rusticated. An open loggia with five arches in the intervals of the order, and one enclosed arch at each end, reaches across the main front of the principal story between the salient bays, and the main portal is an arched opening, with rusticated jambs in relief and an entablature, in the upper stage of the basement. This portal is reached by a double ramp mounting an outer terrace and the lower basement stage. Below this, giving access to the lower basement, is a rusticated portico with an order of rusticated pilasters and three open arches flanked by two narrow enclosed bays with niches, and crowned with a balustrade.

The circular court has an open arcade of widely spaced arches in two stages, of which the lower one has a plain rusticated wall, and the upper one an Ionic order with columns in

[1] *Memorie*, etc., vol. 2, p. 34.

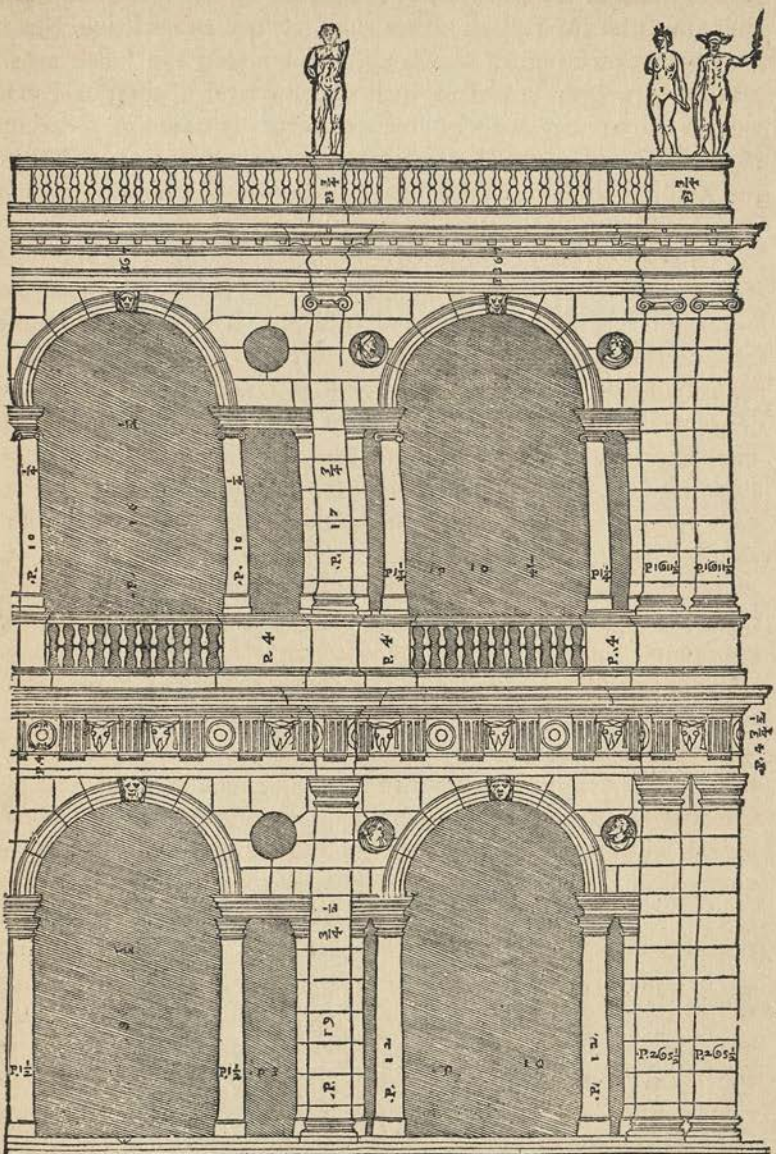


FIG. 72. — Part of the Portico of Vicenza, from Palladio's book.

pairs, and a balustrade with statues crowning the entablature. This sumptuous monument was a source of inspiration to the

later architects of the transalpine Renaissance, and De l'Orme's oval courts of the Tuileries, and the circular courts of the palace of Whitehall by Inigo Jones, suggest its influence.

But in domestic and civic architecture Palladio was more prolific than Vignola, and his work has had a correspondingly wider influence. Among the earlier civic buildings by him is the well-known portico of the town hall of his native city, Vicenza. This portico of two stories covers three sides of a building of oblong rectangular plan, dating from the Middle Ages, and consisting of a great hall over a low basement. Palladio's scheme (Fig. 72) for this portico is plainly derived from the town hall of Padua to which he refers in his book as a most notable edifice.[1] But while basing his design on that of Padua, he modifies it by features drawn from other sources. In place of the simple arcades of the mediæval Paduan model, he has substituted a complicated combination of arches with large and small orders, in which the inspiration of Sansovino's Library of St. Mark in Venice is apparent. The free-standing column under the archivolt of Sansovino's upper story (Fig. 65, p. 120) is reproduced by Palladio in both stories of the portico of Vicenza. But instead of a single column, he has inserted a pair on each side of the arch, ranged in the direction of the thickness of the wall, as shown in the plan (Fig. 73).

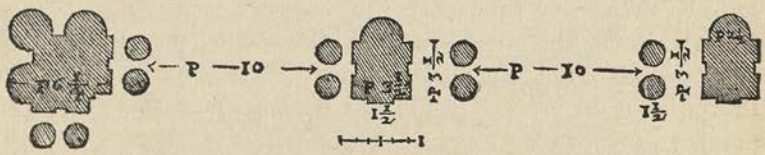


FIG. 73.

The intervals between the columns of the great orders are very wide, because they had to conform with the spacing of the openings in the mediæval structure enclosed; but the arches within the intervals are necessarily of narrower span, since their crowns could not rise above the soffit of the entablature. Thus the free-standing columns of the small order which support these arches are set farther away from the pier than they are in Sansovino's scheme. This free-standing column supporting the

[1] *I Quattro Libri dell' Architettura*, bk. 3, p. 41.

archivolt is often spoken of as an innovation of Sansovino and Palladio. It is worthy of notice, however, that instances of it occur in the Græco-Roman architecture of Syria, as in S. Simeon Stylites (Fig. 74); but the arch in these cases is not framed in with the useless order. In the ground story arcade of Padua the spandrels have circular perforations, and these are reproduced by Palladio in both stories of his portico.

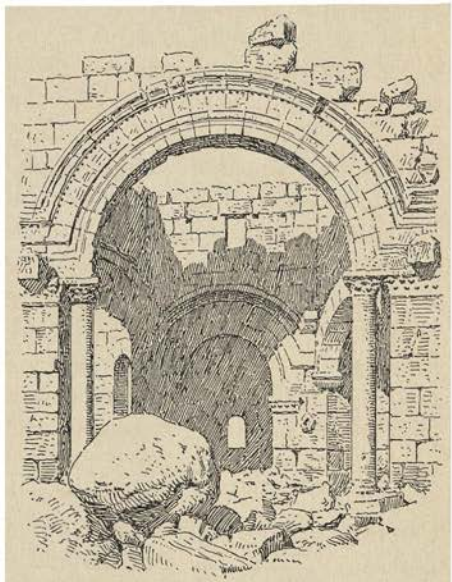


FIG. 74. — Arch of St. Simeon Stylites.

From a structural point of view Palladio's scheme is an improvement on that of Padua. For in Padua, as in Vicenza, both stories of the portico are vaulted, and the slender columns which alone bear the vaulting are too weak to withstand the thrusts of this vaulting, and thus both transverse and longitudinal tie-rods are inserted to maintain the stability of the fabric. But Palladio's massive and heavily weighted piers are strong enough to bear the thrusts without the aid of ties, and it may be added that the great orders have more function here than they usually have in Renaissance design, since their columns act somewhat as buttresses. The shaft of an order has not, indeed, a proper form for an abutment, and has no buttress expression. Its resistance to thrust is slight, but it is better than nothing at all. Following Sansovino, the architect has introduced a balustrade in each opening of the arcade, and a continuous one as a crowning feature of the cornice.

Palladio himself thought well of this work, and he does not hesitate to say in his book that it will bear comparison with the most beautiful buildings of antiquity. He tells us, also, that it is constructed in the best manner out of excellent cut stone.[1]

[1] "Non dubito che questa fabrica non possa esser comparata à gli edifici antichi e annoverata tra le maggiori, e le più belle fabriche che siano state fatte da gli

The last remark is significant, for genuine stone masonry was not always employed by Palladio in buildings which had the appearance of stone construction. The use of brick and rubble with a revetment of stucco had not been uncommon with the

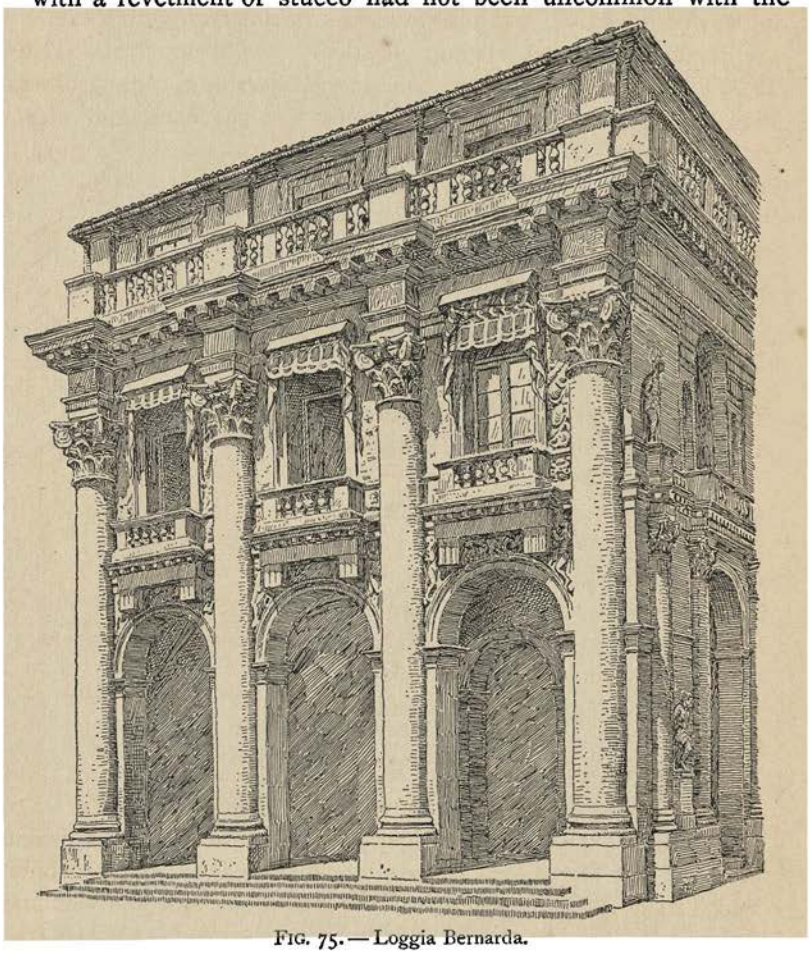


FIG. 75. — Loggia Bernarda.

builders of the early Renaissance, and such materials were extensively employed even by Bramante and Michael Angelo. But Palladio went further than his predecessors in the creation of architectural shams.

antichi in quà, si per la grandezza, e per gli ornamenti suoi, come anco per la materia, che è tutta di pietra viva durisima, e sono state tutte le pietre commesse e legate insieme con somma diligenza." *Op. cit.*, bk. 3, p. 41.

Palladio was an earnest devotee of his art as he understood it, but he had what may be called a theatrical ideal of architecture. The superficial appearance was what chiefly concerned him. He had great versatility in scenic and structurally meaningless composition, and his numerous palace fronts in Vicenza are remarkable for their superficially varied character. The Palazzo Valmarana, with its colossal pilasters on a high podium overlapping a lesser order embracing the basement and mezzanine, while the great entablature is broken into ressauts over the pilasters; the Palazzo Colleone-Porta, with its basement wall rusticated over a plain dado and an Ionic order on the face of the superstructure; the Palazzo Porta-Barbarano, with its superimposed orders and elaborate ornamentation in stucco relief; and the Loggia Bernarda, with its gigantic composite order and balcony corbels in the form of Doric triglyphs (Fig. 75), are sufficient illustrations of this. The skin of stucco with which many of these buildings were originally covered has broken off in many places, revealing the poor materials of which they are built.

FIG. 76. — Window of Palazzo Branzo.

Palladio's compositions are, indeed, based on order and symmetry, but order and symmetry of a mechanical kind. On these and other kindred qualities grammarians in art are prone to lay great stress, but unless accompanied by many others, which for the most part elude all human powers of analysis and description, though they are instinctively grasped by the true artist and appreciated by the discerning and sympathetic beholder, they have little value. Palladio and his associates were not true artists, they were grammatical formalists without the inspiration of genius.[1] As for Scamozzi, little need be said.

[1] They were grammatical, not in the sense of using the classic orders with correctness, — this, as we have seen, they did not do, — but in the sense of arranging their architectural details, such as they were, on a basis of grammatical order.

Milizia tells us that he studied architecture with his father, but that his real masters were the monuments of art themselves; and that, stimulated by the fame of Sansovino and Palladio, he observed their compositions closely, and conceived the ambition to surpass them. His works, which do not differ materially from those of these masters, present no features that are worthy of special remark, unless a peculiar form of compound window, which occurs in the Palazzo Branzo in Vicenza, be an exception. In this composition, often reproduced in the later Renaissance architecture of all countries, two narrow square-headed openings, each crowned with an entablature, flank a wider one spanned by an arch (Fig. 76). This composition has been called an invention of Scamozzi's.[1] But there had been many previous instances of its most noticeable feature, *i.e.* the entablature broken by an arch, as in the porch of the Pazzi by Brunelleschi. I do not know that windows had before been designed in this form in the architecture of the Renaissance; but the same composition occurs in the Roman architecture of Syria, as in the Basilica of Shakka (Fig. 77).

FIG. 77. — Basilica of Shakka.

We have thus far confined our attention to the architecture of the Renaissance as it was developed under the Florentine and Roman influences, early and late. We must now notice some of the phases which the art assumed under other local influences that were subordinately active, chiefly in the north of Italy.

[1] Sir William Chambers, in his *Treatise on the Decorative Part of Civil Architecture*, London, 1791, p. 121, referring to this form of opening, says, "It is an invention of Scamozzi's."

SAN BERNARDINO
Perugia

ROYAL ASIATIC SOCIETY

CHAPTER VIII

CHURCH ARCHITECTURE OF THE RENAISSANCE IN NORTH ITALY

WHILE the architecture of the Italian Renaissance assumed the two principal phases that are broadly classified as Florentine and Roman, from the localities in which the conditions and influences that gave rise to them chiefly prevailed, it is also true, as is well known, that other influences became active in various parts of Italy, leading to the production of phases of design that cannot be strictly classed as either Florentine or Roman. No exact classification of these can be made, but the most marked types having distinctly local characteristics are those of Lombardy and Venice.

But before we examine the church architecture of the Lombard and Venetian Renaissance, one small building of exceptional character in central Italy is worthy of special notice, namely, the façade of the church of San Bernardino of Perugia, dating from the second half of the fifteenth century. This work is remarkable for delicate workmanship, and affords a rare instance of the use of colour in the architecture of the Renaissance. It is made up of red and white marble, with points of dark green and turquoise blue, arranged with quiet harmony of effect. But it is a combination of members put together with no regard to structural consistency. The designer appears to have had not the slightest idea that arches and columns, pilasters and entablatures, have any meaning save as elements of abstract ornamental composition to be played about according to his fancy. The front (Plate V) is an upright rectangle, crowned with an entablature and a low pediment. A broad pilaster is set on each angle, and the space between is filled with a wide and deep recess having a splayed arch reaching to the entablature on splayed jambs. A smaller entablature at the arch impost crosses the entire front, breaking around the jambs and pilasters, and dividing it into two nearly equal parts. The smaller details consist of panellings and medallions

in the splays of the jambs and archivolts, of sculptured reliefs on the tympanum and on the panels, and of shafted and gabled niches sheltering statues on the pilasters. The panels of the splays are flanked with diminutive pilasters which are superimposed with only a narrow fillet between those below and those which rest upon them, and the ornamental framing of the niches is made up of colonnettes carrying rectangular stilt-blocks on which small pediments are set. The elaborate richness of this façade is unusual in the Renaissance architecture of central Italy, except in the smaller compositions of tombs and pulpits, which in treatment it resembles. But profusion of ornament is a marked characteristic of the architecture of the Renaissance in north Italy, to which we may now turn. In Milan and Venice the neo-classic influences were, even more than in Florence and Rome, confined to ornamental details, and in these details the designers of the North had still less regard for classic correctness and consistency than those of central Italy had shown; while the larger structural forms of their buildings still remained essentially Lombard and Venetian. Much of the architecture of the North was, it is true, the work of architects from central Italy, but these architects were so far influenced by local tastes and conditions as to produce designs very different in character from those of Florence or of Rome.

A characteristic early example of this Northern Renaissance design in its most florid form is the well-known façade of the church of the Certosa of Pavia, dating from the close of the fifteenth century. The effect of this front is in its larger parts much like that of a late mediæval Italian one, but the details are pseudo-classic with strange admixture of mediæval elements. The general scheme is a reproduction of the pseudo-Gothic façade of the neighbouring cathedral of Milan, having nearly the same general proportions, and being divided into five bays by deep buttresses. The steep gable, however, which in Milan embraces the whole front, is omitted, and in its stead a horizontal cornice crowns the three central bays, and this, together with the strongly marked horizontal lines below, greatly modifies the general effect of the composition. In the smaller details there is no likeness between the two façades, that of Pavia showing a survival of Lombard Romanesque

forms with the pseudo-classic elements ingrafted on them. A prominent feature of the Lombard Romanesque architecture is the diminutive open arcade. This feature is extensively employed in the mediæval portions of the church to which this façade is the western enclosure, and it is reproduced, with neo-classic modifications, at the top of each of the two principal stages into which the façade is divided. The arches are here carried on small piers, and are framed with diminutive pilasters and entablatures. The portal has a pair of free-standing Corinthian columns on each side, bearing a ressaut of an entablature which spans the opening, and from these ressauts an arch is sprung with spandrels in relief crowned with a classic cornice. In each one of the other bays of the ground story a rectangular window, with classic mouldings and a cornice of classic profile, is subdivided in the mediæval manner with two small arches on a central column and jamb shafts. These last have a tapering form, with a profusion of carved ornament in high relief, and are like the shafts of candelabra (Fig. 78). The mediæval feature of a large circular opening over the central portal is enclosed within a rectangle surmounted by an entablature and a classic pediment, while this compound is flanked on either side by a pair of arches opening beneath a larger arch. To all this mixture of Romanesque and neo-classic features a pseudo-Gothic character is superadded by statues set in niches of the buttresses, and spiky pinnacles over the lateral bays. The details of this overelaborate composition, the work of several successive architects, have no merit in themselves, and the work as a whole is trivial and unmeaning.

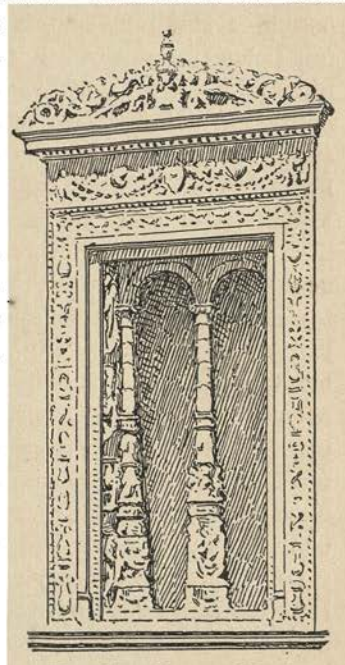


FIG. 78. — Certosa of Pavia.

Among the monuments of the early Renaissance in Milan are several of importance, and of these the church and sacristy

of San Satiro are of special interest because they are said to have been designed by Bramante.[1]

The church bears, I think, unmistakable marks of Bramante's authorship, being a reflection on a reduced scale of St. Andrea of Mantua by Alberti, which there is every reason to believe had been studied and admired by Bramante during his travels in the north for improvement in his art, and a foreshadowing of the great scheme which he subsequently prepared for St. Peter's in Rome. Like St. Andrea, it has a barrel-vaulted nave and transept, with a dome on pendentives over the crossing. The aisles have groined vaulting, and the piers are square and are faced with pilasters. The dome is raised on a very low drum moulded in stucco into the form of an entablature, and the vault surfaces are elaborately coffered in stucco. The church has no eastern arm, since a wall with a much-venerated painting of the Virgin is said to have stood so near the site that space for such an arm could not be had without demolishing it; and as this was not to be thought of, Bramante made a semblance of an eastern arm in the form of a sunk panel with splayed sides, on which he wrought in stucco relief the elaborate perspective which is so noticeable a feature of the interior.

The sacristy (Fig. 79) was built immediately after the church, in the form of an octagon about eight metres in diameter. It is covered with an octagonal dome lighted by a circular opening in each of its sides just above the springing level. The walls of the interior are divided into two stages, the lower one having segmental niches alternating with shallow rectangular recesses, one on each side of the polygon except that of the entrance, while the stage above has a gallery, like a triforium, in the thickness of the wall, with a pair of round-arched openings in each bay. The dome is enclosed within a drum of brick which is covered by a low-pitched timber roof.

[1] Cf. Casati, *I Capi d' Arte di Bramante da Urbino nel Milanese*, Milan, 1870, p. 24 *et seq.* That the design of San Satiro was made by Bramante, Casati gives the evidence of a document printed in the year 1500 by the deputies of the church in which it is said, "... *Come vi si diede principio dopo l' anno 1470 con disegno del celebre Bramante.*" And he finds further confirmation of Bramante's authorship in a commentary on Vitruvius by Cesare Cesariano, printed in Como in 1521, where this author states that the church and sacristy of San Satiro were designed by his preceptor, Donato of Urbino, called Bramante.

The ornamental details of the interior are all of stucco, and consist of two superimposed false orders of pilasters set in the angles, and broken on plan so as to fit them, the entablature

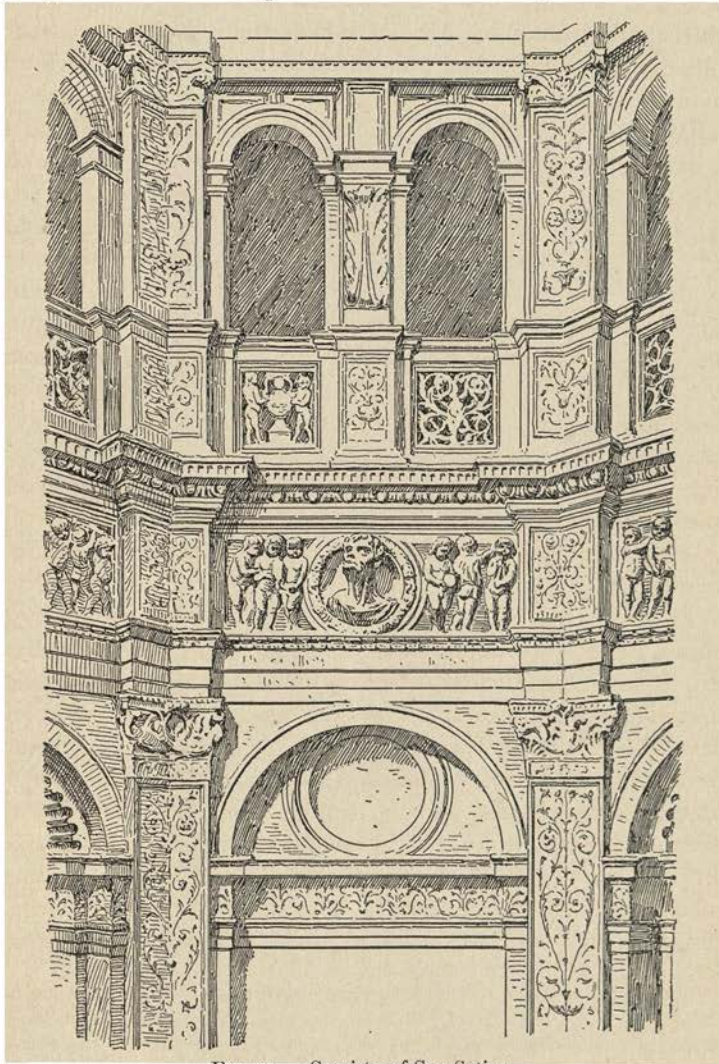


FIG. 79. — Sacristy of San Satiro.

of each order having a ressaut over each pilaster, and the surfaces of the friezes and pilasters being profusely enriched with ornaments in relief. But these details are said to have

been extensively worked over in later times, so that it is doubtful whether any correct idea of the original character of this interior can now be formed, except as to its larger features.

The monument is a diminutive adaptation, in simplified form, of a local mediæval type of building of which San Vitale of Ravenna appears to have been the original example, and San Lorenzo of Milan an offshoot. There are points of similarity between the sacristy of San Satiro and the church of the Consolazione of Todi (Fig. 36, p. 76) that go far to determine their common authorship. The superimposed pilasters broken into the angles of a polygon, the niches in the lower bays, and the ribs on the surfaces of the vault rising from the pilasters[1] are similar in both.

A curious domed structure of the early Renaissance in Milan is the east end of the church of Santa Maria delle Grazie. The dome is hemispherical, and is raised on a drum resting on pendentives over a square area. The most noticeable part of the composition is the exterior, which completely masks the inside. The drum (Fig. 80) is a polygon of sixteen sides, and is in two stages, the lower one of which is solid, and rises above the springing of the vault, while the upper stage, in the form of an open arcaded gallery, with an attic in retreat, reaches far above the haunch of the dome which is covered with a low-pitched roof of timber crowned with a lantern. The lower stage has an order of pilasters with a nondescript entablature, having an enormously high frieze ornamented with an engaged balustrade. A pair of square-headed windows with mullions, surmounted with pediments, opens through each face of the polygon, except the four which fall over the piers of the interior. Against each of these sides a turret rises, forming an abutment. A panelled podium crowns the entablature of this lower stage, and upon it the shafted arcade of the top story rests. The north and south sides of the square beneath have each a low apse, while on the east is a rectangular choir with an apse like the other two.

The architectural treatment of this exterior is not expressive of the inside. The square parts are divided into four stages answering to nothing within, and the lower three of these

[1] Salient ribs of stucco are carried up in the angles of the dome of the sacristy as they are in the vaulting of the apses of Todi.

stages are carried around the apses. The wall surfaces are broken into rectangular panellings by mouldings and pilasters, every alternate pilaster in the third stage having a tapering

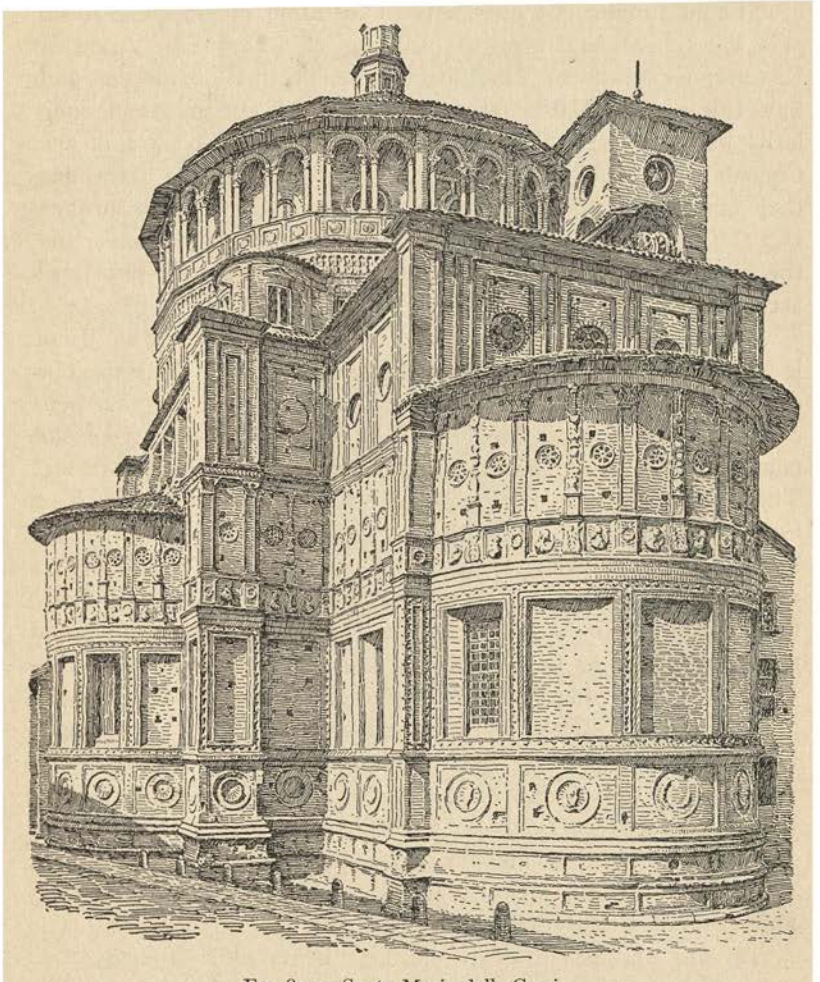


FIG. 80. — Santa Maria delle Grazie.

ornamental member, like the window shafts of the Certosa of Pavia, worked in relief on its face; and the panels are adorned with disks and medallions. Like most of the early Renaissance architecture of Milan, this building is entirely of brick with ornaments of terra-cotta.

The design is attributed to Bramante,[1] and it has features that lend support to belief in this authorship. The encircling arcade at the top suggests the encircling colonnade of the same architect's subsequent design for the dome of St. Peter's. It may not be unlikely that this arcade, wrought while the author was under the influence of the local Lombard Romanesque, suggested the idea of the encircling colonnade after he had come under the severer classic influence in Rome. The alternation of pilasters in the top story of the apses, with the two intercolumns over each interval in the stage below, corresponds to the design of the interior of the sacristy of S. Satiro.

In the chapel of St. Peter Martyr of the church of Sant' Eustorgio, attributed to the Florentine architect Michelozzi, we have a circular celled vault on salient ribs, like Brunelleschi's vault of the Pazzi. This vault is enclosed within a drum carried on pendentives, and is lighted by a circular opening in the drum under each alternate vault cell. The drum is polygonal on the outside, is carried up far above the haunch of the vault, and is covered with a low-pitch roof of timber crowned with a tall lantern. The lower walls of the interior of the square beneath this vault have an order of pilasters, and over the entablature of this order are arched windows, one on the north and the other on the south side, each of which has a mullion and jamb shafts of the Certosa tapering type, and pseudo-Gothic tracery. Most of the details of this interior are of stone, which give it a more monumental character than the buildings before noticed have. The outside is of brick, the square part being plain, with simple angle buttresses, and crowned with a cornice of classic profiling. Pinnacles made up of neo-classic details rise from the angles, and the drum is adorned with an order of pilasters, and with moulded circular panels alternating with circular openings. The building as a whole has the moderation of the works of the early Florentine Renaissance, and is in noticeable contrast to the more florid designs of this region already noticed.

A somewhat later example of ecclesiastical architecture of the Renaissance in Milan is the church of the Monastero Maggiore, dating from the beginning of the sixteenth century, and said to have been designed by Dolcebono, a pupil of Bramante. This is a rectangular structure without aisles, having round-

[1] Cf. Casati, *op. cit.*, p. 44.

arched pseudo-Gothic vaulting, and divided into two parts by a screen across the middle, and into two stories by superimposed orders of pilasters. In each bay of the ground story is a deep round-arched rectangular recess in the thickness of the wall, and over each of these an open gallery with two colonnettes and two small jamb pilasters carrying an entablature over each of

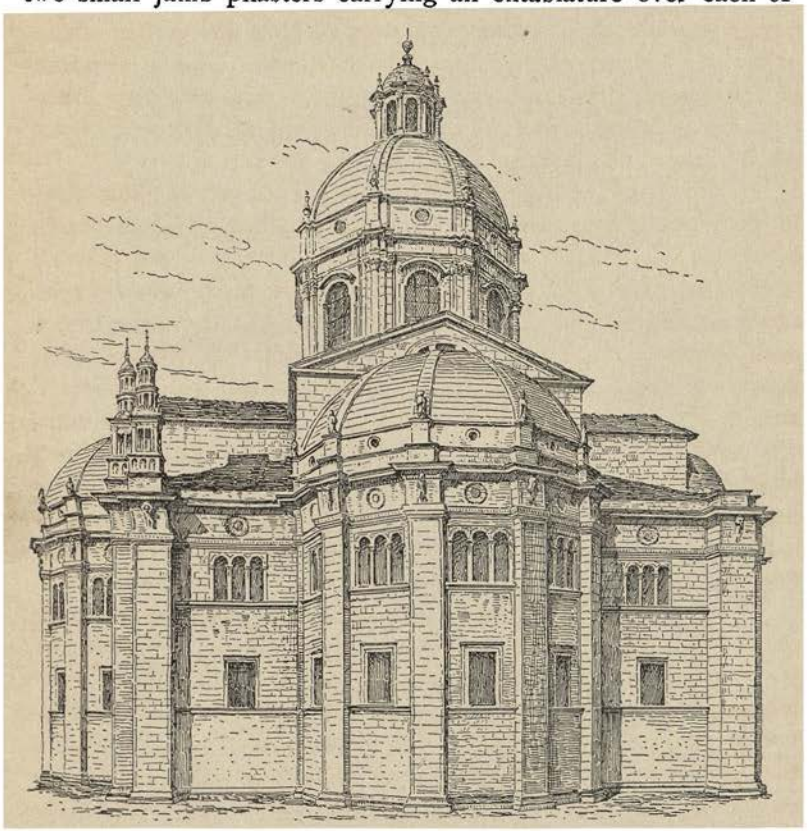


FIG. 81. — East end of Como.

the lateral spaces so formed, and an arch over the central one, an early instance of a form of compound opening that was much used in the architecture of the later Renaissance.[1]

The cathedral of Como affords further illustration of the style of early Renaissance design that is peculiar to north Italy. The building, however, has parts which belong to dif-

[1] Cf., p. 134, the window sometimes called that of Scamozzi.

ferent periods ranging from 1396 to the early part of the eighteenth century. The features most worthy of attention are chiefly those of the exterior,—the east end and the sides of the nave. It is said that Bramante worked here also, and certainly as viewed from the east the composition bears a striking likeness to the church of the Consolazione at Todi (pp. 74–77). It is, however, in the larger features alone that the likeness holds. The details of Como are not, as at Todi, of purely neo-classic character; they are mediæval Lombard modified by neo-classic elements. Instead of superimposed orders of pilasters we have here (Fig. 81) Lombard Romanesque buttresses reaching from the ground to the cornice. The cornice has the neo-classic profiling, and is broken into ressauts over the buttresses, and at a lower level a subordinate band of mouldings is carried along the wall and around the buttresses, the whole forming a likeness to an entablature. The traditional Lombard features peculiar to this region are further reproduced in the arcades of each bay just beneath the pseudo-entablature; but instead of mediæval colonnettes these small arches are supported by diminutive pilasters. The walls are divided into three stages by string courses of classic profiling, and a rectangular window with plain classic jambs and lintel opens in each bay of the middle stage, while the basement wall is unbroken by openings. Disks, one in each bay, adorn the frieze of the simulated entablature, and a sculptured figure is worked on the corresponding part of each buttress. The bases of the half domes over the apses are, as at Todi, treated like attics, but the central dome, with its high drum, is not by Bramante. It is of a later period, and has a more advanced neo-classic character. The scheme of the Lombard buttresses is extended along the walls of the nave, but the details of the window openings, and of the portals here are very different from anything in the apses, and are in a more florid style.

The ornaments of these openings are composed in a manner which appears to be peculiar to this region. The portal (Fig. 82) of the south side, for instance, has the mediæval scheme of a shafted round arch of two orders reproduced in neo-classic details, with an entablature for a lintel passing through the imposts, and another entablature with a pediment placed over the crown of the arch on spandrels in relief. To

associate the entablature with the arch in any way is unreasonable, but to put one entablature under the arch and another one over it in this manner is childish composition. Yet illogical and

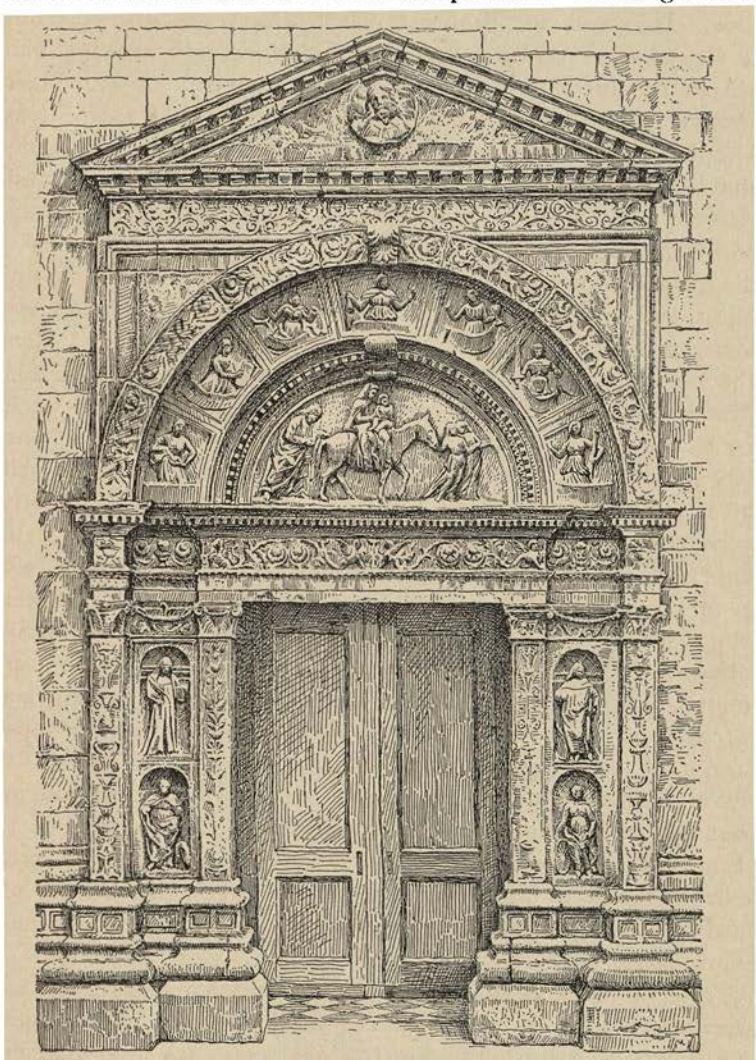


FIG. 82. — Portal of Como.

puerile as the scheme is, I believe it is derived from a common form of Lombard Romanesque porch which is entirely reasonable in design. A comparison of this portal with the porch

of San Zeno of Verona (Fig. 83) will illustrate this. In San Zeno we have a sheltering porch and a portal, and each is rea-

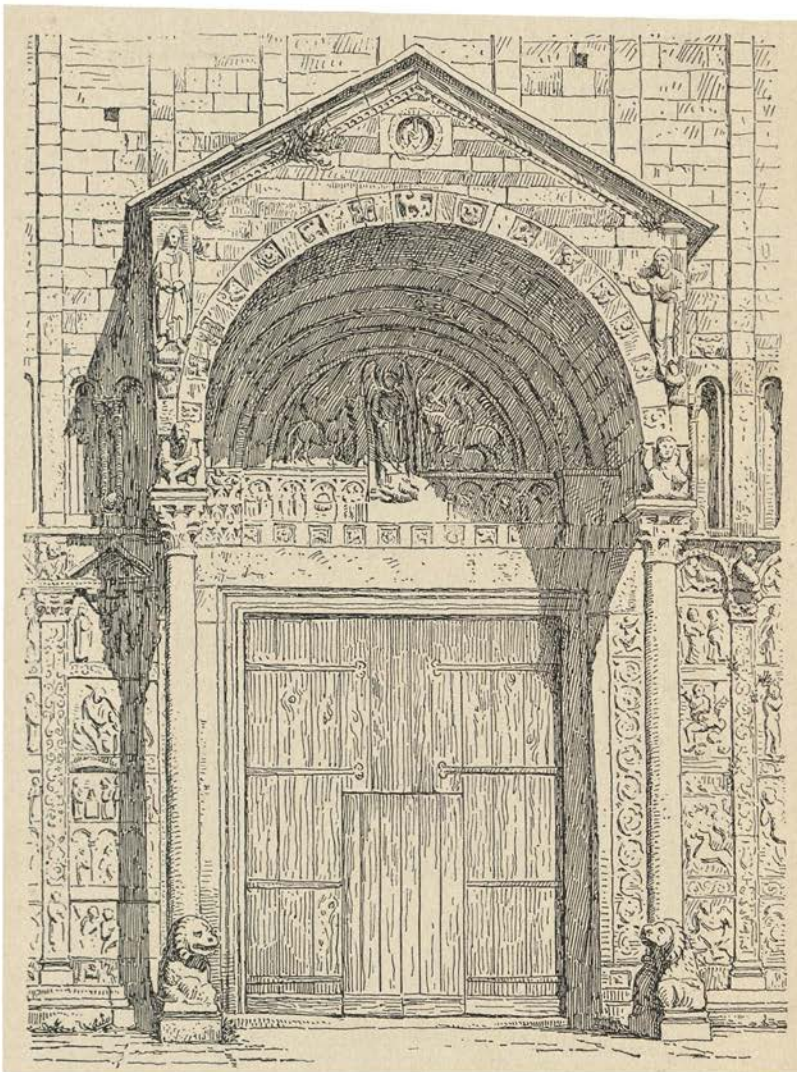


FIG. 83. — Porch of San Zeno, Verona.

sonable in itself, while they are equally reasonable in combination. But if the porch were eliminated, with exception of its façade, and this façade were drawn back into the plane of the

wall, so as merely to frame in the portal, the result would resemble, in composition of lines, the portal of Como, and would

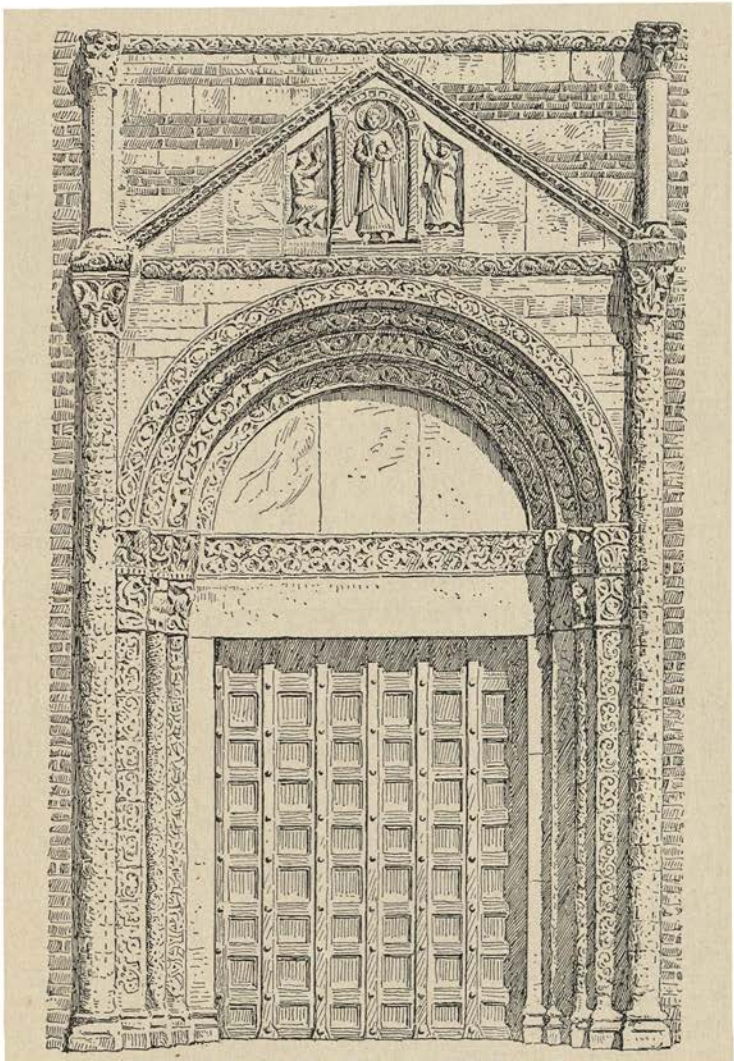


FIG. 84. — Portal of San Pietro in Cielo d' Oro, Pavia.

be as illogical. The first, or encompassing, order of the portal of Como is like the façade of such a mediæval porch wrought in relief against the wall as an ornamental framework. For the

Lombard columns the Renaissance designer has substituted pilasters, for the plain lintel an entablature, and for the mediæval gable a classic pediment with an entablature.

A curious instance of a somewhat similar composition of lines in a Lombard Romanesque portal without an overhanging porch occurs in the façade of the San Pietro in Cielo d' Oro in Pavia (Fig. 84). Here the arched opening is flanked by tall engaged shafts which carry a narrow string course surmounted by a gable over the crown of the arch, while another string course, on short colonnettes resting on the capitals of the larger shafts, passes over the apex of the gable. But in this case it is only the childish association of members without structural meaning that offends the eye. There is no introduction of forms, like the classic pilasters and entablatures of the portal of Como, that are foreign to the architectural system.

FIG. 85. — Window of nave of Como.

This scheme, with various modifications, became a characteristic one in the Lombard and Venetian Renaissance, and was extensively applied to windows, as in the nave of the same cathedral of Como. The windows of this nave are splayed, and are flanked with pilasters from the capitals of which their archivolts spring, while in some of them diminutive pilasters rise from the same capitals and carry an entablature and pediment over the crown of the arch (Fig. 85).

A variety of forms occur in these openings of the cathedral of Como, like so many experiments in fanciful composition without any basis of reason. The window, for instance, of the bay adjoining that here represented, seems to show that the designer felt dissatisfied with the small pilaster set upon the larger one, and accordingly omitted it, a moulding on the edge of the spandrel, profiled like the lower member of the crowning entablature, taking its place. But again, as if he now felt that the entablature required a more architectural support, he has in another

window reproduced the small pilaster, but instead of a large single one below he has employed two narrow ones, thus giving separate support to the arch and the entablature. The doorway on the north side of the nave presents a further modification of the scheme. Here the jambs and the arch are splayed as before, and a tall column of the ornamental tapering form, already noticed in the windows of the Certosa of Pavia and in the chapel of St. Peter Martyr, is set on either side of the composition. This portal, like the one on the south side, has two entablatures with an arch between, and these columns reach to the upper entablature of which they carry ressauts. No great pediment crowns this doorway, but a tall niche, framed in with an order of diminutive pilasters and surmounted with a small pediment, rises over the centre of the upper entablature. This niche shelters a statue of the Virgin, and is flanked by a statue on either side. Many variants of this ornamental scheme for door and window occur in Lombardy and Venice, and it was reproduced in many other parts of Italy, occurring, as we have seen, even in Rome as in the palace of the Cancelleria and the Palazzo Torlonia.

In the fifteenth century, as in the Middle Ages, the architecture of each principal locality developed peculiarities of style in accordance with its peculiar tastes and conditions. Thus the Renaissance design of Venice has a general character of its own, though it drew some of its materials from Florentine and Lombard sources. Michelozzi had followed the exiled Cosimo de' Medici to Venice, and Vasari tells us[1] that he made there many drawings and models for private dwellings and public buildings. On the other hand a family of architects and sculptors from Lombardy, known as the Lombardi (Pietro Lombardo and two sons, Santo and Tullio), had come to Venice in the fifteenth century and introduced features from the Lombard Renaissance.

Among the churches of the Venetian Renaissance San Zaccaria is one of the earliest, and its interior exhibits a singular mixture of those mediæval and pseudo-classic forms of which the Italian architects produced such an astonishing variety. To an apse with a half dome and pseudo-Gothic substructure is joined a nave of three square bays, the first of which is cov-

[1] *Op. cit.*, vol. 2, p. 434.

ered with a dome on pendentives, while each of the others has a plain groined vault. These vaults spring from an entablature which crowns the great arcade, and is returned on the ends of the building, with ressauts on corbels at the imposts. The aisles have oblong groined vaults on pointed transverse arches springing from corbels on the wall side, and tied with iron rods. The main proportions conform with those of the so-called Italian Gothic churches, the great arcades of the nave, and consequently the aisle vaulting, being relatively very high. The most singular feature of this interior is the column (Fig. 86) of nondescript character, and a variant of the tapering Lombard Renaissance shaft of Pavia and Como. It consists of a shaft of pseudo-Corinthian form raised on a high octagonal pedestal, with a very wide and richly moulded base.

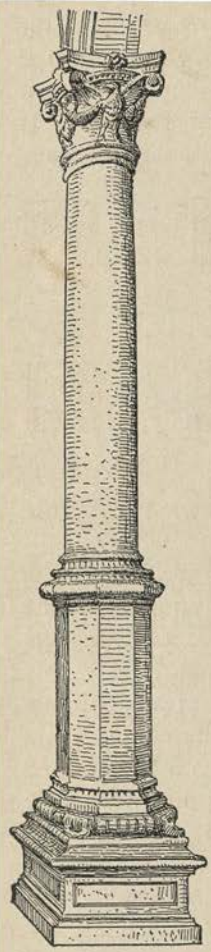


FIG. 86.

The church of San Salvatore, dating from the close of the fifteenth century, and attributed to the architect Tullio Lombardo, though begun by Spavento,[1] has a modified Byzantine structural scheme applied to a long nave with three domes on pendentives separated by short sections of barrel vaulting. The supports (Fig. 87) of this vaulting are peculiar, and are like the piers of the nave of St. Andrea of Mantua modified by piercing them both transversely and longitudinally so as to leave four slender solid parts at the angles (two of which are engaged in the aisle wall), the void being covered with a diminutive dome on pendentives. The plan of the structure as a whole suggests this comparison with St. Andrea, but the character of the supports suggests their derivation from the piers of the church of St. Mark. These last are square masses of masonry pierced longitudinally and transversely so as to leave four heavy solids as in Figure 88, the void in this case being covered with a

[1] Melani, *Architettura Italiana*, vol. 2, p. 154.

diminutive groined vault. In San Salvatore the solids are greatly reduced in volume, and are faced with neo-classic pilasters, above which the pier is solid, and is faced with an entablature surmounted by an attic from which the vaulting springs. The use of an attic in an interior, and especially as a support for vaulting, is one of those architectural aberrations with which the Renaissance has made us familiar. I know not when or where it first occurred, but there can be few earlier instances than this. It was not seldom introduced by the architects of the later Renaissance, and, as we shall see, by Sir Christopher Wren in St. Paul's cathedral. It is worthy of notice that the system of San Salvatore is that of the church of St. Mark modified by lightening the piers in the way that we have seen, and by the application of neo-classic details.

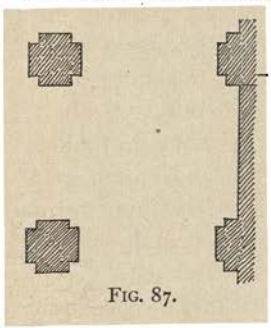


FIG. 87.

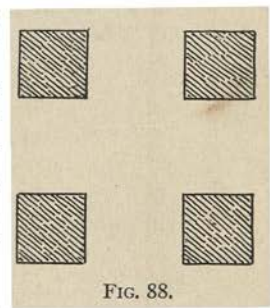


FIG. 88.

The nearly contemporaneous church of S. Fantino has the same general character, except that groined vaulting takes the place of domes on pendentives in all but the easternmost compartment of the nave, and the attic story is omitted.

No work of the early Renaissance in north Italy exhibits more refinement in its details than the small church of Santa Maria dei Miracoli in Venice, the design of which is ascribed to Pietro Lombardo (Fig. 89). The plan is a simple rectangle with a rectangular sanctuary. The plain walls of the nave are covered with a round timber roof, and the sanctuary has a small dome on pendentives. The interior is richly incrusted with marble and relief carvings of the utmost delicacy, and of unusual beauty of design. The walls of the exterior are divided into two stages by superimposed orders of pilasters on podiums. The pilasters of the upper order carry archivolts instead of an entablature, thus recalling the mediæval Lombard blind arcade, and the walls above this are crowned with an entablature. Over the portal a curved pediment is set against the entablature of the lower order, and the whole façade is crowned with a semi-

circular pediment pierced with a large round opening and five smaller ones ranged on its semicircumference. The wall sur-

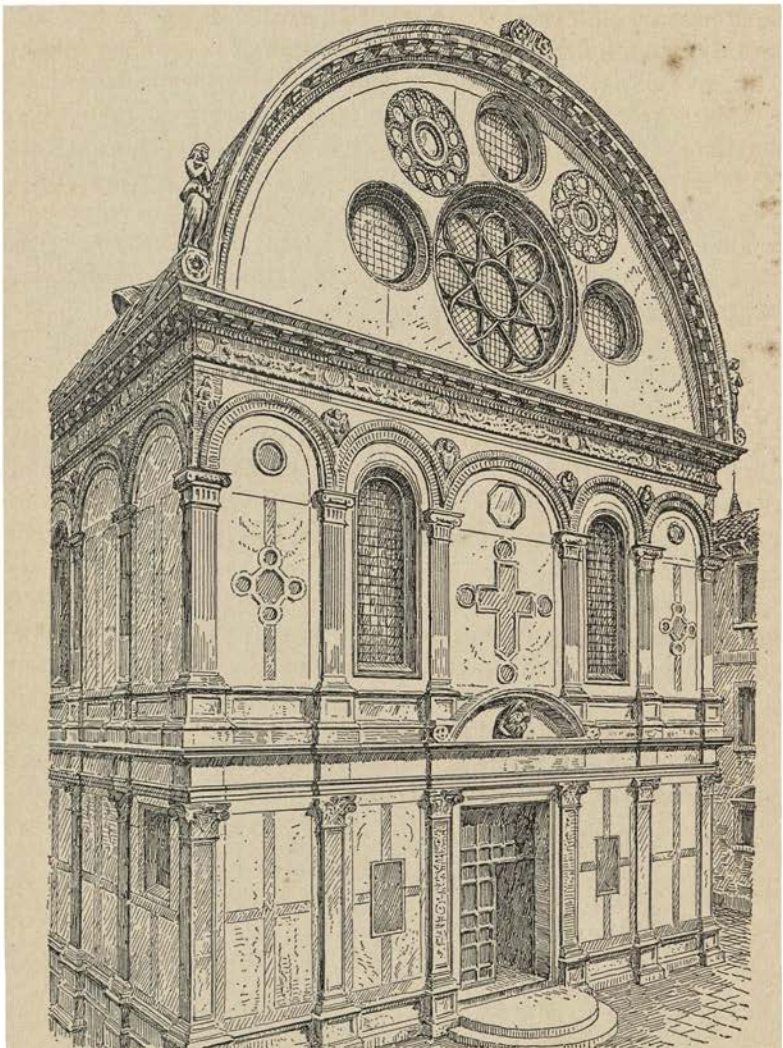


FIG. 89. — Santa Maria dei Miracoli, Venice.

faces are incrusted with marble panelling set with disks and lesser panels of cruciform and rectangular shapes in faintly coloured marbles, and the whole building is a marvel of excel-

lence in mechanical execution. But the use of the inappropriate superimposed orders falsifies the design by giving it the appearance of two stories while in reality it has only one.

The façade of Santa Maria Formosa exhibits another phase of early Renaissance design in Venice. This façade is noticeable as reproducing some of the larger features of Alberti's west front of St. Andrea of Mantua with details having the character of the works of the Lombardi. The great central arch of St. Andrea is omitted here, and the existing portal is an alteration of a later time in a style that does not agree with the rest of the design. The three compartments into which the front is divided are treated as sunk panels flanked by half pilasters set against the larger ones, over which last the entablature is broken into ressauts. In each lateral compartment over a podium connecting the high pedestals on which the pilasters are raised is an opening of the Lombard type. The main lines of the composition correspond with the internal divisions of the building, except that the entablature of the order, which is carried across the entire front, divides the nave compartment into two stages.

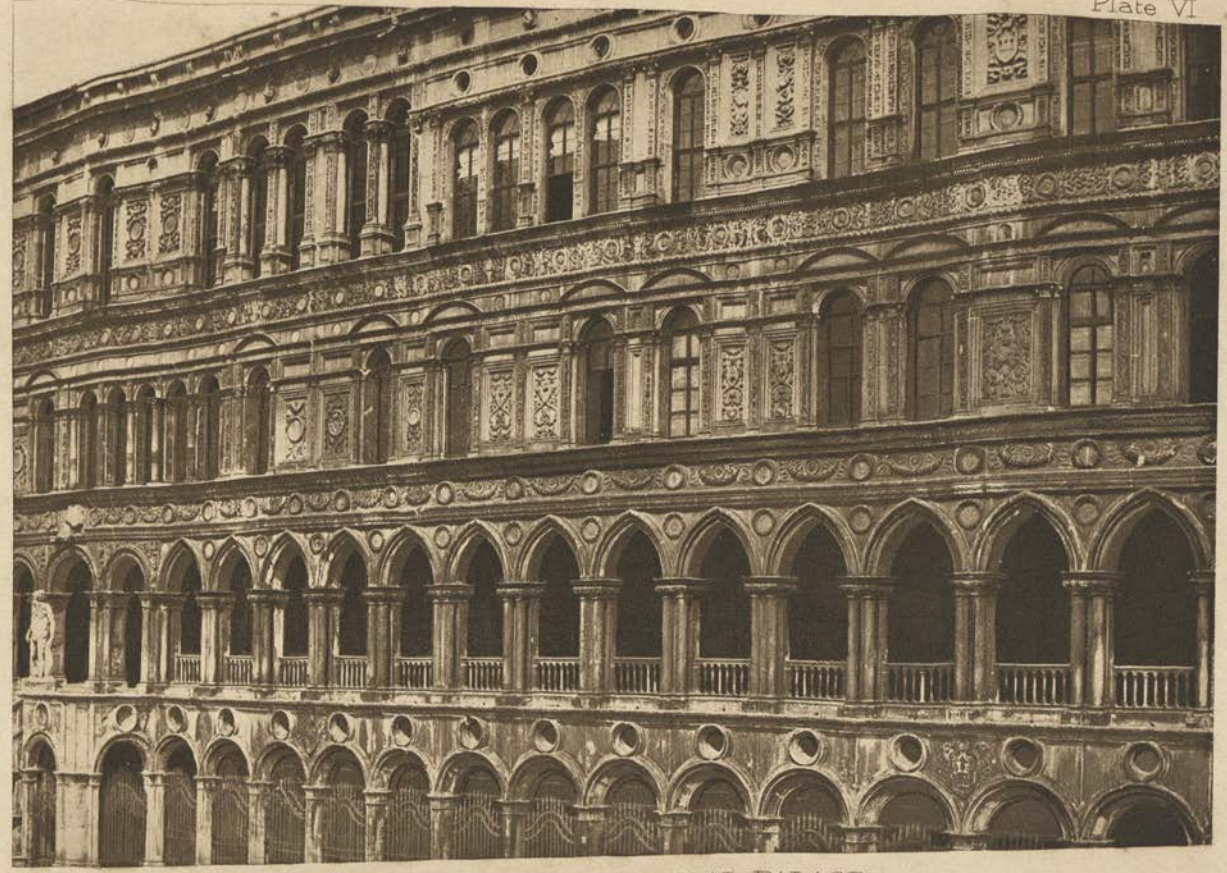
The foregoing examples are enough to show the leading characteristics of the church architecture of the early Renaissance in north Italy. In the later period the local peculiarities give place for the most part to the measurably uniform style of which Vignola and Palladio were the leading masters, and which has been already considered under the heading of Church Architecture of the Roman Renaissance.

CHAPTER IX

PALACE ARCHITECTURE OF THE RENAISSANCE IN NORTH ITALY

THE palace architecture of the Renaissance in north Italy which has the most marked local character is that of Venice. We have already, in the preceding chapter, noticed several buildings here by Sansovino, but these belong to the later Roman Renaissance style, and are thus not so distinctly Venetian. Several civic monuments, however, and many houses of the Grand Canal and elsewhere, exhibit the peculiar Venetian type. Among the earliest and most noteworthy of these is the east side of the Court of the Ducal Palace by the architect Antonio Riccio of Verona.[1] This richly ornamental scheme is wrought upon a foundation of earlier work to which the architect was obliged to conform, and this appears to have given rise to the irregular magnitudes and spacings of the openings of the upper stories, which are so noticeable, and are in marked contrast with the symmetrical regularity of Renaissance design in general. The long façade is in two walled stories above a basement in two stages of open arcading, with the so-called giant's stairway giving access to the upper arcade. The ground story has splayed round arches on piers of corresponding section adorned with pilasters of neo-classic form, while the stage above has a pointed arcade on compound shafted supports of mediæval Venetian character (Plate VI). The upper stories are marked by entablatures, and the round-arched windows are flanked by pilasters reaching, in the principal story, to the arch impost, and then stilted to carry curved pediments worked in relief against the entablature that crowns this story. The top story is divided into two parts of nearly equal length, but of different height, and different design. The part extending from the middle to the sea side of the court is the lower, and has its windows flanked by pilasters reaching to the crowning entabla-

[1] Cf. *Architettura Italiana*, by Alfredo Melani, Milan, 1887, vol. 2, p. 157.



FAÇADE OF COURT, DUCAL PALACE
Venice

ture. These pilasters are raised on pedestals forming ressauts to a podium, and some of the windows are grouped in pairs, some in double pairs, and some are single. In the taller part the windows are taller, and show considerable differences of design. One group, consisting of a double pair, has flanking pilasters reaching only to the impost, with a stilt-block rising from the capital of each to the crowning entablature, while Corinthian colonnettes, with strongly marked entasis, support the archivolts — both pilasters and shafts being raised on low pedestals. Separated from this by a considerable interval is another window group of the same design, but consisting of a single pair, while in the intervening space, and along the rest of the wall toward the church of St. Mark, are unequally spaced single windows with pilasters supporting the archivolts, and other pilasters flanking these, all raised on high pedestals connected by a continuous podium. In the upper stage of the basement, at the head of the giant's stair, the pointed arcade is interrupted by a group of three round arches on grouped pilasters. The wall surfaces are everywhere elaborately panelled and enriched with arabesques, and the friezes, spandrels, and podiums have panelled disks, festoons, and arabesque ornaments in tiresome profusion.

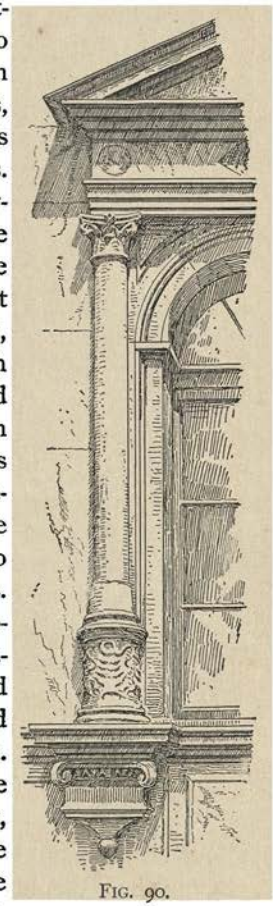


FIG. 90.

The north side is also in the Renaissance style, but here is only one enclosed story, and this is on the level of the upper arcade of the east side. The architectural scheme of this part is different, except that its entablature is a continuation of the lower one of the eastern façade. The work here appears to have been wholly new, and the regularly spaced windows are each framed with a pseudo-Corinthian order in high relief, the shafts of this order being raised on ornamented round pedestals resting on corbel-blocks (Fig. 90). The walls are incrusted with large slabs of

veined marble, and an ornamental disk in relief is set in each interspace.

The finest thing in this court is the giant's stair. Few architectural works of the Renaissance are so reasonable and so free from superfluous and unmeaning features. The steps, broken about midway by a landing stage, are enclosed by balustrades of severely simple design starting from square newels; and the sides are plainly panelled in marble, with delicate mouldings and arabesque carvings on the surfaces of the framing members. The mechanical execution of the whole is superb, no settlement or fracture appearing in any part.

The façade of the Scuola di San Marco, begun in 1485 and attributed to the architect Martino Lombardo, is a marvel of delicate workmanship resembling in many of its features the small church of the Miracole (p. 151) while including details of a different character. It is in two stories, and is divided into two parts, answering to an internal division, one of which, embracing the main portal, is larger and richer than the other. An order of Corinthian pilasters embraces both parts of each story, and these pilasters are unequally spaced in conformity with the proportions of the respective parts and their openings. The main division, which is on the spectator's left as he faces the building, has three bays of which the central one is the wider. The main portal (Fig. 91) is in this bay, and has two arch orders on pilasters flanked with larger pilasters, also in two orders, reaching to the entablature which passes over the arch. A free-standing Corinthian column on a high pedestal is set in front of each pilaster of the greater suborder, and from ressauts of the entablature over these columns an archivolt in high relief is sprung against the wall of the upper story. The shafts of the flanking columns are unusually short, the pedestals being about half the total height from the ground to the entablature. Comment on the unreason of such compositions becomes wearisome, and criticism may appear like captiousness. But if the reader will consider the character of a Greek portal, with its jamb mouldings and cornice, as reasonable and appropriate as they are simple, of a true Gothic doorway with its consistent arch orders, but with no superfluous or unmeaning features, he can hardly fail to feel the childishness of this Renaissance design in comparison.

The other division of this front has a smaller and more simple doorway in its central bay, with an unbroken wall above,

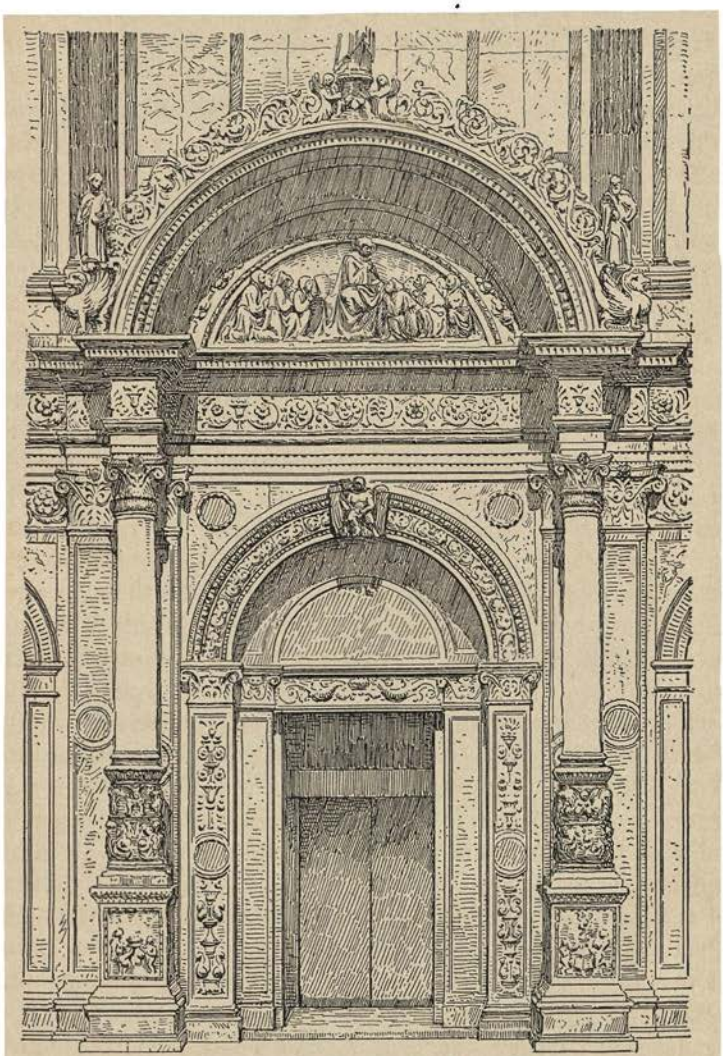


FIG. 91. — Portal of the Scuola di San Marco, Venice.

and a narrow arched window, framed with pilasters and a gabled pediment in each upper lateral bay, while the lateral compartments of the ground story are adorned with remarkable carv-

ings in very low relief which present an extreme instance of that tendency to pictorial treatment that distinguishes the relief sculpture of the Renaissance. The main cornice, embracing both divisions of the front, is crowned with a series of arched pediments, varying in span with the bays beneath, which recall those of the façade of the church of St. Mark. Those over the main division of the façade are raised on ornamental attics of which the middle one is in two stages.

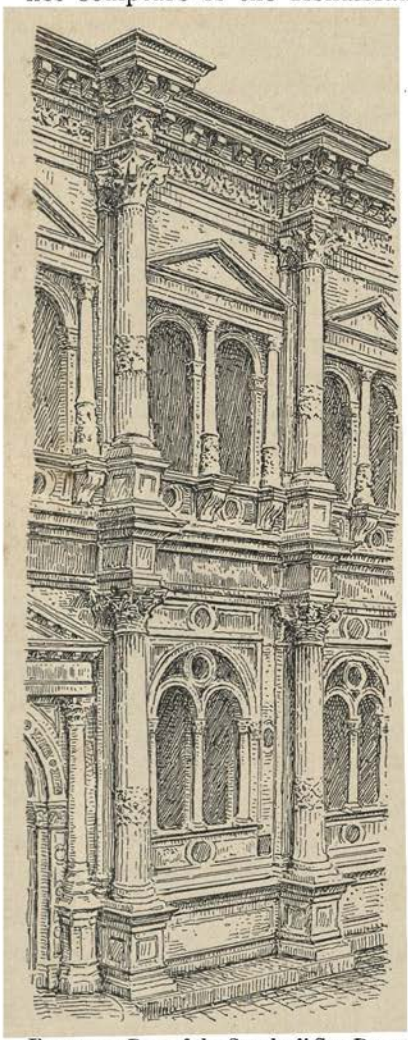


FIG. 92. — Part of the Scuola di San Rocco.

The details of this composition are in very low relief, and the entablatures are broken into slight ressauts over the pilasters. The wall surfaces are incrusted with marble slabs, with simple panellings and small disks introduced sparingly, and the archivolts of the main portal, and of the crowning pediments, are adorned with arabesques and with small statues and finials.

The merit of this composition as a whole lies solely in the ordering of the component details which the designer has employed in a purely fanciful way without any proper architectural meaning; but the refinement of execution, and the beauty of the marbles, with their pearly colours subdued and harmonized by time, make the monument one of the most notable in Venice.

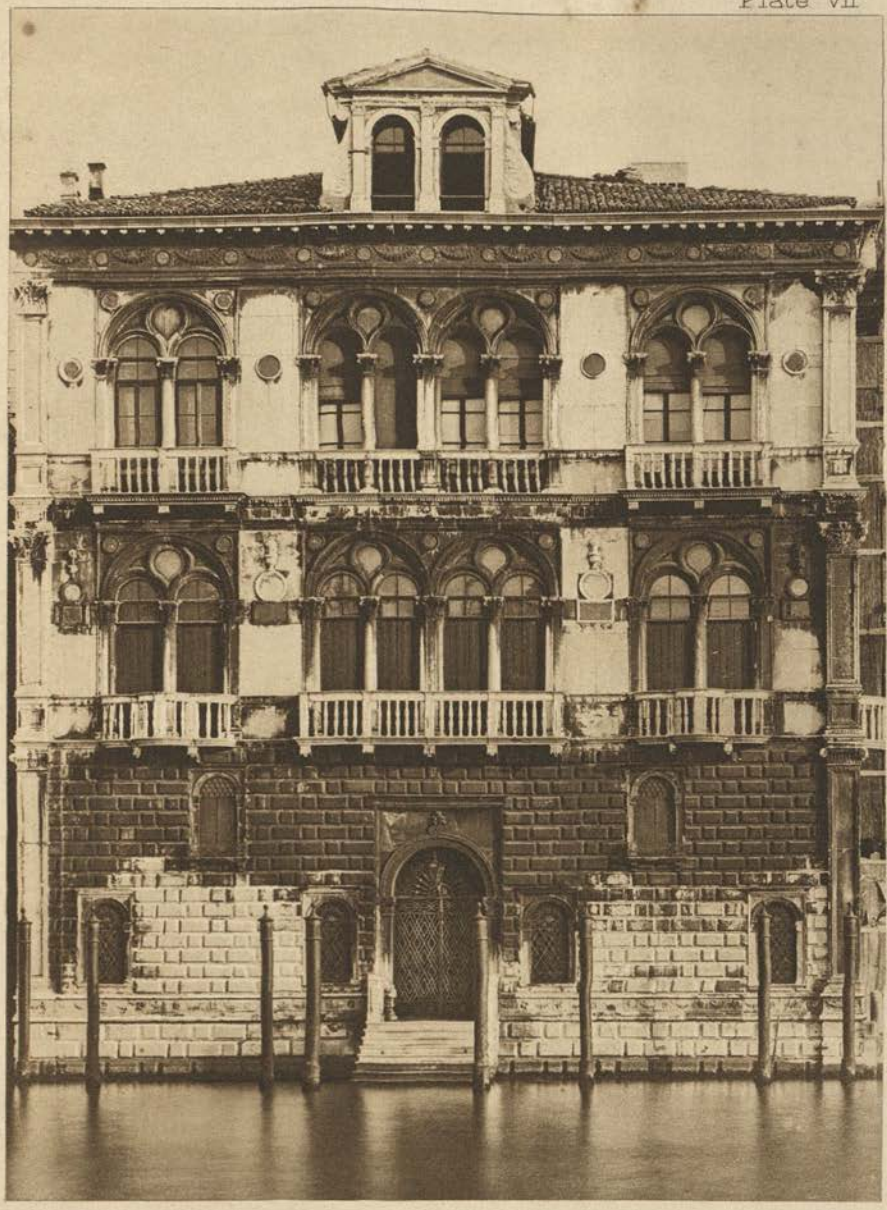
Another characteristic example of early Renaissance design in Venice is the Scuola di San Rocco (Fig. 92). The façade

of this building is again in two divisions each of two stories, the main division having three bays and the other but two. These bays are marked by superimposed pilasters which are carried across both divisions, and in the main division a free-standing Corinthian column is set in front of each pilaster. In each story the columns are raised on pedestals connected by a podium, and each one is wreathed with a band of ornamental foliage. The entablatures are in the plane of the wall, and are broken into very salient ressauts which in the main cornice are unpleasantly conspicuous against the sky. Both the columns and the ressauts are meaningless, the columns having nothing but the ressauts to carry, and the ressauts having no function but to cover the useless columns. The lesser details of this façade are of mixed character. The main portal has splayed jambs adorned with pilasters, and an archivolt of corresponding section. This portal is framed by an order of smaller Corinthian columns, on high polygonal pedestals, with a pediment over the entablature. The side bays of the basement of the main division have each a wide arched window subdivided by a central colonnette and jamb shafts carrying two small arches, with a tympanum pierced with a circle and triangles in mediæval fashion. The great arches of these windows have spandrels in relief crowned with cornices in the Lombard Renaissance manner. In the upper story each bay has a pair of arched windows framed by a pseudo-Corinthian order of colonnettes on ornamented round pedestals resting on corbels, the entablature of this diminutive order being surmounted by a pediment. In the window of the central bay the pier between the openings is wider than the piers of the side windows, and has a pair of colonnettes on its face instead of only one.

But the most characteristic architecture of the Renaissance in Venice is that of the private palaces of the grand canal. The princely dwellings ranged along this unique waterway are unmatched by anything else in the world. The finest of them are, however, those of the later mediæval period. These alone have the thoroughly distinctive Venetian character; but a few of the palaces of the early Renaissance retain the fine proportions, the quiet outlines, and the expression of refined opulence that belong to the buildings of the preceding epoch. In the

best of them the neo-classic details are used sparingly, though not without strange new inconsistencies of form and adjustment.

The Palazzo Corner-Spinelli (Plate VII), attributed to Pietro Lombardo, is one of the most characteristic. Its broad-walled basement, and the well-ordered subdivisions of the upper stories, are exceedingly fine, though the basement is high and the principal story rather low. No complete orders occur in this façade, but superimposed pilasters are placed on the angles, and an entablature is carried across each of the upper stories, while only a narrow string course crowns the basement. The windows are disposed in the manner of those of the mediæval Venetian palaces, a pair of them being set together in the middle, and a single one occupying the centre of each lateral bay in conformity with the divisions of the interior. These windows are wide, and are composed in the mediæval manner, with a dividing shaft and two small arches encompassed by a larger arch, as in the Scuola di San Rocco. A noticeable peculiarity of detail in these windows is the incomplete circle in the tympanum space, which intersects the smaller arches so as to form sinuous curves like those of Flamboyant Gothic tracery. The archivolts are carried by small pilasters, and the spandrels are framed with mouldings. The windows open on corbelled balconies with balustrades in Renaissance form of great refinement and elegance, and the balcony rails are carried as string courses along the walls. The panelling of the pilasters, as in this design and many others that we have noticed beginning with Alberti's façade of St. Andrea of Mantua, is of questionable propriety, for supporting members need to have an expression of concentrated strength with which such treatment is hardly compatible. The surface of a pier or pilaster may be enriched by any kind of fluting or chasing that does not materially diminish its substance, but to sink panels in such supporting members is to destroy in a measure the expression of homogeneous compactness. The classic details in this building show the same disregard for correct classic forms and proportions that we find in the art of the Renaissance generally. The superimposed pilasters on the angles are of uniform width, though they differ greatly in height, and those of the various openings are of still different proportions and sizes. This association of members of the same kind, but of many different



PALAZZO CORNER-SPINELLI.
Venice

magnitudes, is proper to the organic mediæval architectural systems, under the influence of which these designers were unconsciously working; but it is foreign to the principles of the classic art. The beauty of the Corner palace, is, however, quite independent of the neo-classic details which are sparingly ingrafted upon it, and belongs to the larger forms and proportions of the mediæval Venetian style.

Other Venetian palaces of the early Renaissance exhibit other peculiarities which it would be tedious to describe at length, but it may be well to notice a few of them. The Palazzo Contarini, for instance, has its three principal interior divisions marked by superimposed pilasters in addition to the pilasters on the angles. The basement order is raised on a podium, and both the basement and the principal story have an entablature, while the top story is crowned with a low cornice with modillions and no complete entablature. The arched portal is flanked with pilasters in two orders, both crowned with entablature blocks, but no entablature spans the opening under the arch, and the spandrels are framed with mouldings and crowned with a cornice. The windows are narrow and round arched, and have no dividing members. Four of these are grouped together in the central bay of each upper story, and those of the principal story are framed in with a Corinthian order of five columns surmounted by a pediment, the whole composition having exactly the form of a diminutive temple front. Each lateral bay above the basement has two single windows, those of the principal floor being each framed with a Corinthian order like that of the central group, and crowned with a pediment. The windows of the top story are flanked by very slender pilasters of equal height with those of the main order, and smaller pilasters carry the archivolts. The end windows of the central group and the inner ones of the lateral bays come close to the pilasters of the main order, thus giving on each side a group of pilasters of three different proportions and magnitudes, as in Figure 93. The front as a whole is good in its proportions, and quiet in effect. The neo-classic details add nothing to it of value, and the composition would be better without them.

The Palazzo Vendramini has full orders in all three stories, and the distinctive Venetian character is materially altered by them. The usual scheme of the Venetian palace front, in

which a wide central bay wholly occupied by openings is flanked by lateral bays each with a solid wall on either side of an opening, is indeed retained, but the effect of it is much obscured by the prominence given to the orders, which are in high relief, and extend across the whole front. The openings have the mediæval form of two shafted arches beneath an embracing arch with a circle in the tympanum space. Three, instead of two, of these compound openings are grouped within the unusually wide central bay, and each one fills an intercolumniation of the order. In each lateral bay the columns of the order are unequally spaced in conformity with the narrow strips of solid wall, one on either side of the opening, which they enclose, giving a wide central intercolumniation and two narrow ones. The cornice of the basement entablature is widened, and supported on corbels from the frieze, in front of the windows of the principal story, and balustrades are set on these projecting ledges so as to form balconies. To give emphasis to the topmost entablature as the crowning feature of the façade, it is made so high as to be out of all proportion to the order of which it is a part.

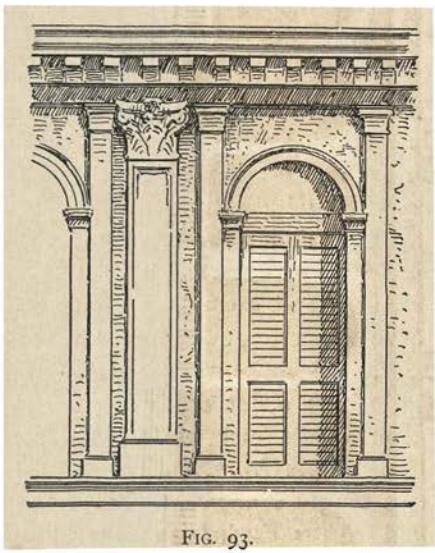


FIG. 93.

Of the later palace architecture of Venice it is unnecessary to give any extended analysis because it is less distinctly Venetian, and belongs more fully to the so-called Roman Renaissance style which is essentially uniform in character in all parts of the country. In these later palace fronts the main divisions of the typical Venetian scheme persist indeed, but they are so slightly emphasized, and so overladen with heavy orders, that they lose their proper effect. In Sansovino's Palazzo Cornaro, for instance, already described (p. 124), these main divisions of the front are hardly noticeable in a general view. The general

PALAZZO DEL CONSIGLIO
Verona

effect is of evenly spaced pairs of columns in each of the upper stories. It is not until we examine the composition closely that we perceive the narrower proportions of the three middle openings. The same is true of the façade of the Palazzo Grimani by Sanmichele, though in this case the grouping is different, the columns being set in pairs in the lateral bays only. Even in the still later and heavy rococo design of the Palazzo Pesaro by the architect Longhena, which is based on the scheme of the Library of St. Mark, the unequal main divisions of the Venetian palace type are still preserved.

Among examples of north Italian Renaissance palace architecture outside of Venice the well-known Palazzo del Consiglio of Verona (Plate VIII) presents a mediæval broletto scheme dressed out in Renaissance details which it would be better without. The building has but one story over an open arcaded basement. The arcade is in two divisions of four arches each, the arches springing from short columns raised on square pedestals, and the pedestals connected by a balustrade. A central pier and a pier at each end enclose these divisions, and on the face of each pier is a shallow pilaster supporting a narrow entablature which extends across the whole front, with a corbelled capital over the central column of each division to support the entablature in the long intervals between the pilasters. The upper story is divided into four equal parts by pilasters set over the pilasters and corbels of the basement. These pilasters are on ressauts of a podium over corresponding ressauts in the entablature below, and the crowning entablature is likewise broken with ressauts. A twin-arched opening with central colonnette, flanked by pilasters and crowned with an entablature and curved pediment, occupies the middle of each division of this story, and the walls are incrusted with elaborate marble inlay. The general form and proportions of this monument are exceedingly fine, but in respect to these qualities it belongs to the Middle Ages and not to the Renaissance. To the simple arcade and plain walled superstructure the neo-classic details are inappropriate and meaningless.

Another northern Renaissance building of the broletto type is the Palazzo Comunale of Brescia, in which we have a basement arcade of three arches on heavy piers, with an engaged Corinthian order adjusted in the Roman manner, and over this

a single story in retreat divided into three wide bays by pilasters carrying a heavy entablature. A square-headed window in each bay is framed by an order of smaller pilasters the entablature of which reaches to the soffit of the crowning entablature.

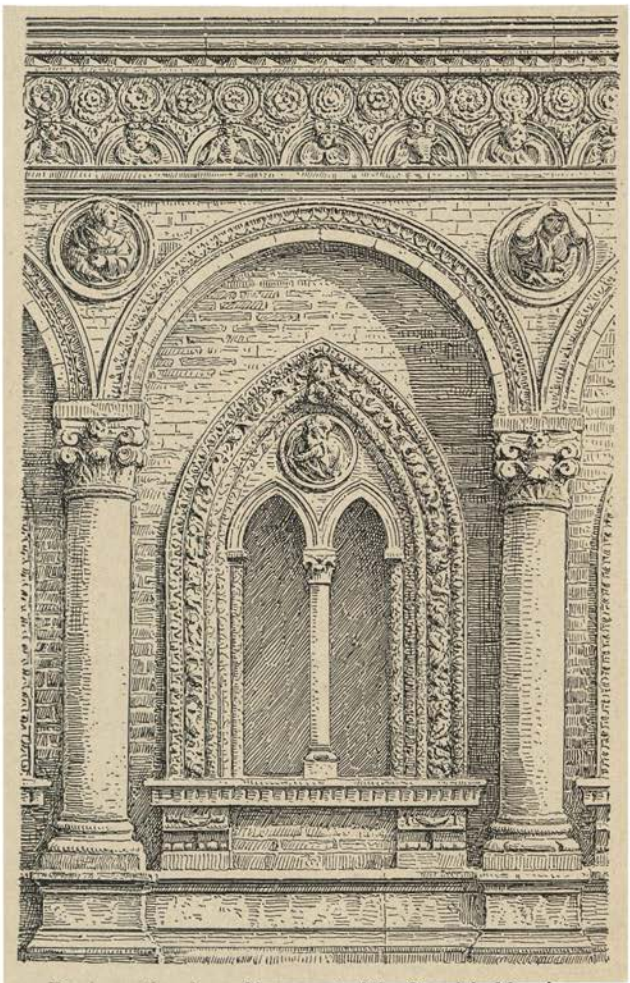


FIG. 94. — One bay of basement of the Ospedale Maggiore.

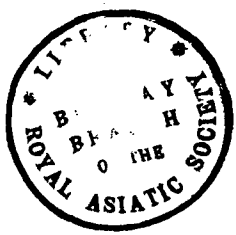
In those parts of the Ospedale Maggiore of Milan which were designed about the middle of the fifteenth century, by the Florentine architect, Antonio Filarete, the larger features are of mixed and debased mediæval character with no applica-

tion of classic orders. The building is of brick with elaborate ornaments of terra-cotta, and has but two stories including the basement. The basement has a blind arcade of round arches on stumpy columns with Corinthianesque capitals, and a compound opening of two pointed arches under a larger pointed arch is set in each bay (Fig. 94). The faces of the jambs and archivolts of these openings are heavily adorned with mouldings and foliate ornaments in terra-cotta relief, while the archivolts of the arcade above have more simple neo-classic profiling, and more refined and conventional foliate ornamentation. The window-sills are on coupled corbels of heavy and inelegant form, and the whole arcade is raised on a high base with ressauts under the columns. Medallions with busts in high relief are set in the tympanums of the windows and in the spandrels of the arcade, while a wide frieze somewhat like an entablature crowns this part of the composition. The upper story has a plain brick wall with windows like those of the basement enclosed within rectangular panels.

FIG. 95.

Other peculiarities of design are found in some of the early Renaissance palaces of Bologna, where in the Palazzo Bevilacqua the windows of the principal story have the mediæval form of two small arches under a larger arch, modified by the omission of the central shaft which gives the middle of the tympanum the form of a pendant. But it is not worth while to follow these aberrations of early northern Renaissance design further. The palace architecture of the later Renaissance in north Italy has no distinctive character that calls for particular comment. It is for the most part based on the art of Palladio and Vignola which we have already enough considered. While it exhibits many more of those misadjustments of structural members, and other vagaries of design, in which Italian architects have been at all times fertile, it has no great importance to justify special remark. To point out in detail many such mean-

ingless caprices as those introduced by Pellegrini in the court of the Palazzo Brera in Milan, where the arches of the superimposed arcades are sprung from pairs of columns connected by short entablatures, making it necessary to double the transverse arches of the vaulting behind them, or such novelties as occur in the windows of the basement of the Palazzo Martinengo of Brescia, which are adorned with small Doric columns carrying architraves without the other parts of an entablature, while an upright block with a ball on it rises over each column (Fig. 95), would be tiresome and profitless. We may therefore pass on in the next chapter to a brief consideration of the carved ornament of this architecture, before taking up the architecture of the Renaissance in France and England.


ROYAL ASIATIC SOCIETY

CHAPTER X

ARCHITECTURAL CARVING OF THE RENAISSANCE

ALL effective sculpture on buildings, including that of the human figure, is architectural carving; but it is in Gothic art only that sculpture of the human figure, as well as that of subordinate ornamentation made up of the other elements, has at once an appropriate architectural character and a high degree of excellence in the development of form. In the best Greek art the carving of the human figure has, indeed, a grandly monumental quality; but the Greek sculptor did not seek primarily to give his work an architectural expression. He wrought it with a kind of perfection that is not compatible with the fullest measure of such expression. Greek sculpture, though placed on a building, is in a measure independent of it, and thus it not only loses nothing, but may even gain in value, when taken from its place on the building and set up in a museum where it can be viewed by itself.

In the art of the Renaissance the human figure in the full round is treated so independently as to lose nearly all monumental expression, while for strictly architectural carving we have reliefs on pilasters, friezes, and capitals, made up of scrolls and meanders with leafage, grotesque animal life, and a great variety of objects, including the human figure, represented more or less fantastically as ornament. Renaissance sculpture of the human figure thus having so little proper architectural character, we shall not consider it here, but confine our attention to the relief carving, which has a closer architectural connection, if not a much truer architectural expression.

A great deal of this carving is in close imitation of Roman models, as a comparison of a fragment of Roman arabesque from the Museum of Florence (Fig. 96) with a fragment of Renaissance arabesque from the Ducal Palace of Gubbio (Fig. 97) will show. But in elegance, delicacy, and subtlety of line

and surface, the best carving of the Renaissance is superior to that of ancient Rome. The linear basis of such design is

FIG. 96. — Roman Arabesque.

highly artificial, consisting of formal scrolls and meanders, and the leafage and other forms introduced are treated artificially without being finely conventionalized. The conventions of this

RELIEF OF THE LOMBARDI
Venice

art are not the natural result of a true sense of ornamental abstraction, of architectural fitness, and of the nature of materials. They do not manifest a fine appreciation of the beauty of the object conventionalized. They are factitious conventions which often do violence at once to the forms of nature, and to the true principles of design. The ear of barley, and the flower stalks, in Plate IX, a characteristic work of the Lombardi in the church of Santa Maria dei Miracole in Venice, illustrate this. The rigid parallel straight sides and the square end of the

FIG. 97. — Renaissance Arabesque.

barley ear, and the flaccid sinuousness of the flower stalk, are expressive of no architectural or material conditions to which the artist had to conform. They express nothing but the designer's insensitiveness to the character and beauty of the natural forms. Compare the ear of barley (Fig. 98) from an ancient Greek coin in the British Museum.[1] Though severely conventionalized, this representation finely expresses the true character of the real object. Such details as the rectangular barley ear and nerveless flower stalk in Plate IX would seem to indicate an incapacity on the part of the designer to appreciate those elements of beauty in plant life which may be made effective in ornamental carving, were they not associated with other details that manifest a fuller sense of vital character. The foliation of

[1] Coin of Metapontum.

the scrolls in the same relief (Plate IX) has a character which makes us wonder how a designer who could so finely render the nervous life of leafage could associate with this leafage the lifeless details just noticed, and the further monstrosities of the axial composition including the characterless grotesque animals out of which the scroll leafage issues. The symmetrical Arabesque scheme of the whole, and the nonsensical details of the central part, are from the Roman source,[1] while the leafage, though also cast in the Roman form, owes much of its best quality to the inspiration of Gothic art. The qualities that give their subtle charm to such conventionalized forms elude complete analysis and definition, but they are based on the proportions, curvature, and relations of lines and surfaces that belong to the organic forms of nature.

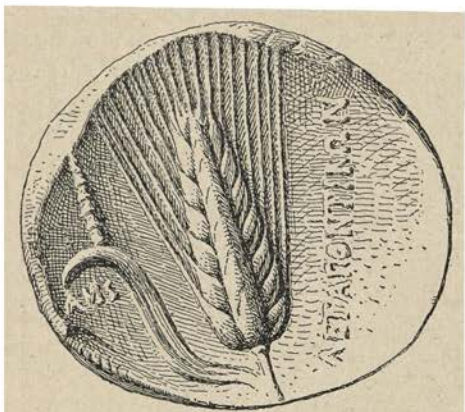


FIG. 98. — Greek coin, magnified.

Such subtle beauty of leafage is exceptional in the ornamental design of the Renaissance. The carver of the fifteenth century generally misses the vigour of line, the finer surface flexures, and the expression of organic structure shown in the supremely fine details of the reliefs by the Lombardi. The convolutions of Renaissance design are apt to be more formal and the leading lines less springy. In some cases the finer qualities of curvature are wholly wanting, as in the scrolls that border the bronze door-valves of St. Peter's in Rome by the Florentine sculptor Filarete (Fig. 99). In these scrolls the heavy and lifeless character of the poorest Roman models is reproduced. The finish of these carvings, in the better examples, is usually elaborate, and in such work as that of the Lom-

[1] Vitruvius, bk. 7, chap. 5, refers with disapproval to the tasteless and meaningless monstrosities embodied in the ornamental art of his time, and the remains of Roman reliefs offer many examples of such design.

bardi in Venice it is exquisite. But in many cases it is mere surface smoothing without expressive character, as in the leafage of Benedetto da Maiano in the pulpit of Santa Croce of Florence, where the expression of the beautiful leaf anatomy is almost wholly polished out.

FIG. 99. — Arabesque by Filarete, Rome.

It is a fundamental weakness of this style of ornamentation that it is so largely made up of artificial convolutions and formal symmetries. Reduced to its linear elements, it mainly consists either of an axial line with scrolls and weak curves set symmetrically on either side of it, or of a formal meander with alternating scrolls. The wearisome repetition of these two schemes of composition is a characteristic of the art of the Renaissance. Many changes are wrung on these primary motives, but no possible variation of them can relieve their dulness. That they are derived from an ancient source does not justify their use. They are not, however, drawn from the best ancient source. In Greek art elements of a kindred nature had been treated in a finer way, with exquisite moderation of curvature and vitality

of line. But the ornamental designers of the Renaissance drew their inspiration from the Græco-Roman travesties of Greek ornamentation, such as the tiresome arabesques that were painted on the walls of Pompeian houses.

The arrangements, as well as the treatment, of the details drawn from plant life that are associated with this style of design are often most artificial and inorganic, as in the pulpit of Santa Croce before mentioned, where on the side of a console (Fig. 100) fruit and leafage issue from a nondescript receptacle of ungraceful shape, having a clumsy fluted stalk bound with a fluttering ribbon ending in a tassel. Such unnaturally

FIG. 100. — Console of pulpit in Santa Croce.

composed details are unknown in the pure Gothic art which the men of the Renaissance thought so barbaric. The introduction of objects like the singular cornucopia and the ribbon of this design is common in Renaissance ornamentation. Without affirming that artificial objects may never enter into an ornamental composition, I think it may be said that such objects, if used as conspicuous features, ought to have some beauty of form,[1] and certainly every group of objects, of whatever kind, should be composed so as to produce an effect of organic unity.

[1] The theory respecting the use of artificial elements in architectural ornamentation developed by Ruskin in his well-known chapter entitled, "The Lamp of Beauty," in the *Seven Lamps of Architecture*, is, I believe, entirely right in principle, though the author is arbitrary in some of his conclusions and overemphatic in some of his statements.

Each detail ought to have a place and a posture which should make it a part of some system of related ornamental lines. This is, of course, elementary, and the principle is usually carried out in the ornamentation of the Renaissance, though in a highly artificial way. But in the design on the triangular panel of this console there is no fine system of related lines. The fruit and leafage have a disjointed arrangement, and the wriggled ribbon has no beauty of line or surface.

Instances of such disordered composition are conspicuous in the borders of the famous Ghiberti gates of the Florentine Baptistery, where the bosses of leafage set at regular intervals are composed in the same inorganic way (Fig. 101), and the bunches are bound with spiral fluted fillets. It is noticeable that the details are here elaborated with a minute naturalistic completeness that is incompatible with architectural effectiveness. The possibilities of the bronze material in which the design is wrought are developed to the utmost in the rendering of leaf veinings, serrations, and surface textures. This tendency to combine excessive naturalism with extremely artificial composition is a curious characteristic of both Roman and Renaissance art.

FIG. 101. — Leafage from the Ghiberti gates.

We find in the ornamental carving of the Renaissance not only a formal, and often a disjointed, scheme of composition, with artificial objects of no beauty or meaning introduced among elements derived from natural forms, but numerous instances occur where the design is made up entirely of such objects, as in a pilaster in the National Museum of Florence (Fig. 102). Such value as this design has lies wholly in its childish symmetry of arrangement of the ugly elements about an axis. It contains nothing else on which the eye can rest with pleasure. I think

it may be taken as a true principle that architectural ornament cannot be good unless it be an expression of the kind of beauty that we find in organic nature. I do not say that the elements of such ornament must be directly, or consciously, drawn from nature; but every quality of line and surface that, in a healthy state of mind, we feel to be beautiful is exemplified in organic nature, so that however abstract or conventional a piece of good carving may be, its forms will have a correspondence with those of natural objects.

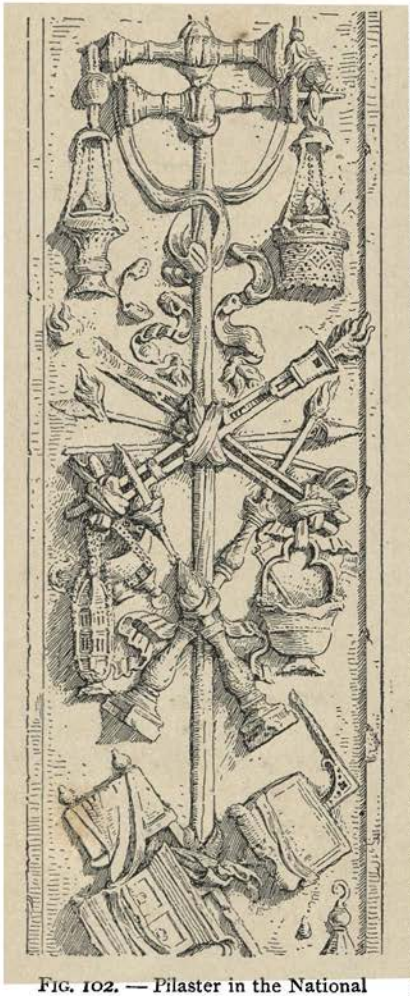


FIG. 102. — Pilaster in the National Museum, Florence.

The finest forms that occur in the carvings of the Renaissance are those of foliation such as we have already noticed (p. 170). But even these are rarely of real excellence. An appreciation of the vital beauty of leafage has in general not been manifested by the Italians, whether ancient or modern. The leafage of Roman art is as inferior to Greek leafage as that of the Renaissance is to the foliation of the French Gothic carvers. Take, for instance, the crisp acanthus leaves of the capital from Epidaurus (*A*, Fig. 103) in the National Museum of Athens, with their strong nervous life notwithstanding their severely conventional treatment; or the leaf *B* in the same figure, from another Greek capital in the same museum, with its spiky cusps and its exquisite systems of radiating lines — at once true to nature and effective as ornament; and compare with these any examples of Roman, or Græco-Roman,

leafage, as *A* and *B* (Fig. 104). Observe in *A*, from a composite capital in the Naples Museum, the excessive convolution of the leaf ends, the obtuse rounded cusps, the lack of radial relationship in the lines of depression, and the un-

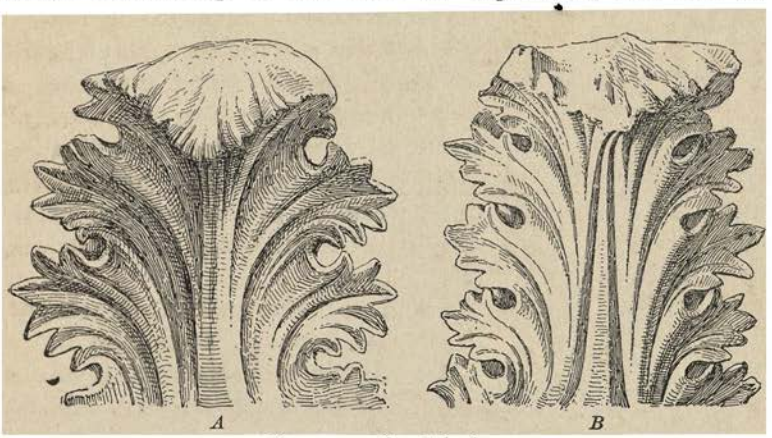


FIG. 103. — Greek leafage.

modelled flatness of the surfaces between the furrows. And notice in *B*, from a Corinthian capital supposed to have belonged to the so-called Temple of Jupiter Stator, the immoderate and artificial undulations of line and surface.

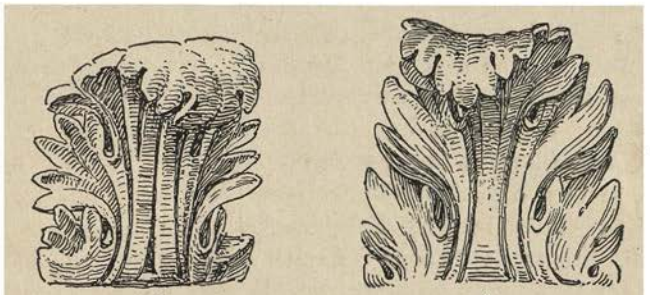


FIG. 104. — Roman leafage.

Turning now to the Renaissance leafage of capitals, we may take, first, any one of the portico of the Pazzi chapel by Brunelleschi. The obtuseness shown here (Fig. 105) to the fine qualities of natural forms that may be made effective as architectural ornament is really amazing. The treatment is of the Roman

kind with emphasis on the artificial conventions of Roman art. The rigid lines and rectangular sections of the furrows, each ending abruptly in a straight line across the bottom, and the unmodelled flatness of the intervening surfaces indicate a surprising lack of appreciation of those elements of beauty which distinguish really fine ornamental carving. Such leafage is, indeed, exceptionally poor, yet instances of a kindred sort are not seldom met with, as in the capitals of the doorway of the sacristy of Santa Croce in Florence by Michelozzi.

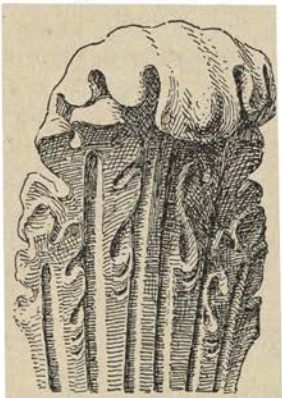


FIG. 105. — Leafage of Brunelleschi.

The more characteristic Renaissance leafage is, however, sometimes beautiful, as in the capitals of the municipal palace of Brescia (Fig. 106). Nevertheless, a curious, and singularly artificial, convention is noticeable here in the fillet-like form, and abrupt angular termination of the upper end, of the ridges which mark the subdivisions of the leaf surface. This peculiar detail is of almost constant occurrence in the acanthus foliation of the Renaissance, and is in marked contrast with the finely rounded and more natural treatment of the corresponding parts of the Greek leaf forms as in Figure 103. This unnatural detail sometimes takes another form, as in a capital by Giuliano da San Gallo in the Palazzo Gondi, where its edges (Fig. 107) are less angular, its surface grooved lengthwise, and the upper end is rounded. But whatever beauty this Italian leafage may have, the design is rarely more than a recast of Roman models, with little manifestation of that fresh inspiration from nature that gives such charm to Gothic foliation.

FIG. 106. — Leafage of Brescia.

The grotesque, which enters largely into these ornamental

compositions, is uniformly weak and characterless. This has been already noticed (p. 170) in the work of the Lombardi. It is equally marked in all other neo-classic representations of imaginary creatures. The southern genius appears never to have been capable of conceiving

FIG. 107. — Leafage of San Gallo.

FIG. 108. — Relief of the Scala d' Oro.

the grotesque in an imaginative way. That power appears to have belonged exclusively to the northern races. The monster of the Renaissance, like his Roman ancestor, has no organic life, no suggestion of reality, and therefore no impressiveness comparable to that of the grotesque creature of the Gothic carver. And not only is the grotesque of the Renaissance unimaginative and insipid, but its forced monstrosities not seldom have a repulsive vulgarity, as well as a structureless incoherence. Take, for instance, the silly creatures in the relief of the Scala d' Oro in the Ducal Palace of Venice by Sansovino (Fig. 108). These nondescript monsters, without anatomy, and without point or meaning of any kind, are merely disgusting

FIG. 109.

when we attend to anything more than the ornamental lines in the abstract, and even these lines are without any fine qualities. The masks ending in leafage (Fig. 109), from a pilaster in the church of the Miracole in Venice, are fantastical, but neither witty nor effectively grotesque; and the *Putti* treated in the same way, so frequently introduced, are equally pointless, and without particular merit as design.

CHAPTER XI

ARCHITECTURE OF THE EARLY RENAISSANCE IN FRANCE

On the north of the Alps the Renaissance had not the same meaning that it had in Italy, and in France, where its influence was first felt, the art naturally assumed a different character. The term "Renaissance" is not, in fact, properly applicable here, for the French people had not had a classic past, and the adoption of architectural forms derived from classic antiquity was not at all natural for them. Through the developments of a noble history they had acquired and perfected a peculiar genius which had found expression in forms of art that were radically different from those of ancient times; and in now departing from the principles of this art they did violence to their own native traditions and ideals.

It has been often affirmed that French architecture was but superficially changed by the Renaissance influence, and that its essential character survived beneath the Italian dress.[1] This is not wholly true. The Italian influence did effect a fundamental change in this architecture by giving it, as we shall presently see, a factitious, in place of a natural, character. This point has been overlooked by those writers who have maintained that the French artistic genius suffered no loss of integrity while yielding to the Renaissance movement.

But it must not be forgotten that the native art had lost its best character long before the Italian influence supervened.

[1] The most authoritative French writers are misleading in affirming that no radical departure from their best building traditions was made by the French architects of the Renaissance. Thus Viollet le Duc (Dict., vol. 3, *s. v. Château*, p. 174) says of these architects, "Toujours fidèles a leurs anciens principes, ils ne sacrifièrent pas la raison et le bon sens." But while affirming this, these same writers sometimes make admissions which so materially qualify the affirmation as to deprive it of its truth; thus the same author, remarking on the changes that were making in the character of the château, adds (p. 185), "Nous accordons que la tentative était absurde; mais la renaissance française est, à son début, dans les lettres, les sciences ou les arts, pleine de ces hésitations."

The finest Gothic impulse was spent before the close of the thirteenth century, and the feeble spirit and florid extravagance of the Flamboyant style which now prevailed betrayed a weakened condition of the national artistic mind which made it an easy prey to the foreign innovations.

Until the sixteenth century the Gothic style survived in its decadent forms. Yet in some quarters before this time an interest in the arts of antiquity was gaining foothold, and a few Italian artists had come into France and wrought some small architectural works in the neo-classic manner. But the way appears to have been opened for a more general movement in the new direction when the French upper classes began to construct fine houses adapted to the requirements of luxurious life. This movement was favoured by the changed conditions of the times. Concomitant with the cessation of feudal turmoil and the need for fortified castles was a great increase of material wealth, far exceeding that which France had enjoyed at any former time in its history. Life and property were now secure, population grew, the towns enlarged their borders, and the resources of the king and the nobles were correspondingly enlarged.[1] These conditions had found expression in architecture during the fifteenth century in such palatial houses as that of Jacques Cœur at Bourges, and the Hôtel Cluny in Paris. These houses, though retaining the irregular character of mediæval French castles, have no defences, and are abundantly lighted on all sides by large window openings. They are the forerunners of the Renaissance châteaux.

To understand the early French Renaissance château it is necessary to recall the character of the feudal castle of the Middle Ages out of which it was evolved. The plan of the feudal castle was generally irregular and its outline picturesquely broken. But its irregularity and picturesqueness were not the result of any purpose on the part of its builders to produce a picturesque effect. It was a consequence of the natural conformation of the rugged site to which the building had to shape itself, of the need for defensive towers, and of the conditions of climate calling for high-pitched roofs, more or less broken by dormers and chimney-stacks.

The earlier palatial residences of the open country were in

[1] Martin, *Hist. de France*, vol. 7, pp. 378–382.

many cases the older castles remodelled or enlarged, and opened, by great windows cut through their massive walls, to the light and air.[1] And although there was no longer need for such defences as would withstand the siege of a feudal army, it was still for some time necessary to provide for security against roving bands of marauders which continued to move about, and thus the surrounding fosse and the drawbridge were retained for a considerable time after the loopholes and embattled towers of the Middle Ages had become unnecessary.

In cases where the château was a wholly new building, it was generally placed on even ground, and the plan became symmetrical. Yet still the outline remained broken with the steep gables, chimneys, and dormers that are proper to a northern climate; and even the towers, turrets, and other features of feudal architecture were largely retained. The French château, as has been often remarked, was never transformed into any likeness to the Italian villa; but it was, nevertheless, so radically changed as to lose that admirable logic of design which distinguishes the French architecture of the Middle Ages. The composition of the Renaissance château is factitious in the sense of being artificially made up; it is not, like the mediæval castle, an outgrowth and expression of natural conditions and actual needs. Thus while it is still peculiarly French in character, it is not an expression of the French genius in its integrity. The French genius in its integrity has not been manifested in architecture since the Middle Ages.

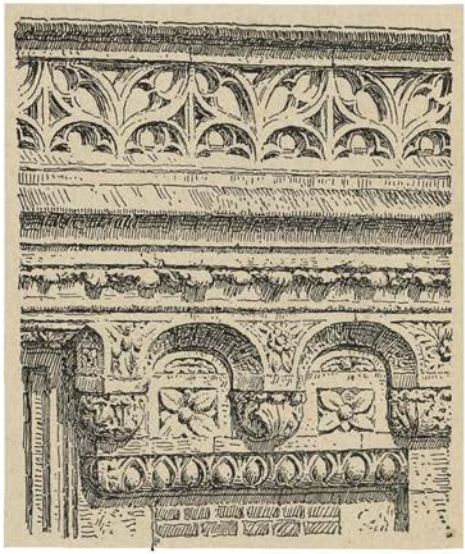


FIG. 110. — Cornice of Blois.

The earliest palatial houses of the Renaissance in France

[1] Cf. Viollet le Duc, *s. v. Chateau*, p. 190.

are ornamented with debased Gothic details almost exclusively. The neo-classic elements are introduced sparingly, and are hardly noticeable in the general effect. An illustration of this is afforded in those parts of the château of Blois which were built under Louis XII. Here the egg and dart scheme is worked on the lower members of the cornice, while elsewhere the mediæval details are retained. This cornice (Fig. 110) is

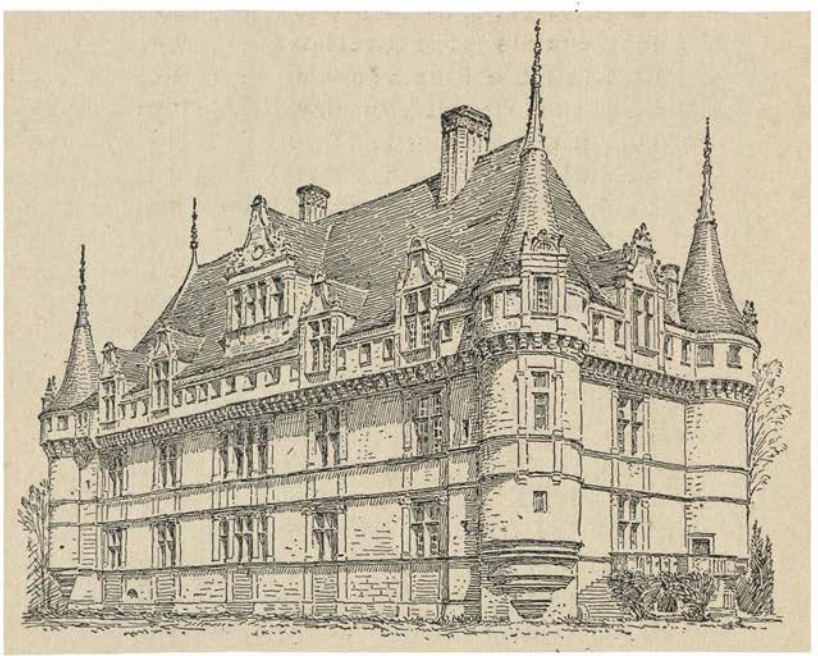


FIG. 111. — Azay le Rideau.

a curious medley, though of no exceptional kind. Against a flat lower member is a corbel-table (a Romanesque feature) treated in a Flamboyant way, the small arches being splayed and having the three-centred form. The crowning mouldings have approximately true Gothic profiling, while a Flamboyant parapet of elaborate design surmounts the whole.

Of the distinctive early French Renaissance architecture, which took form during the reign of Francis I, a fine example is the château of Azay le Rideau (Fig. 111). This building was an entirely new structure, not a mediæval one remodelled. It is of moderate dimensions, and, although it has considerable

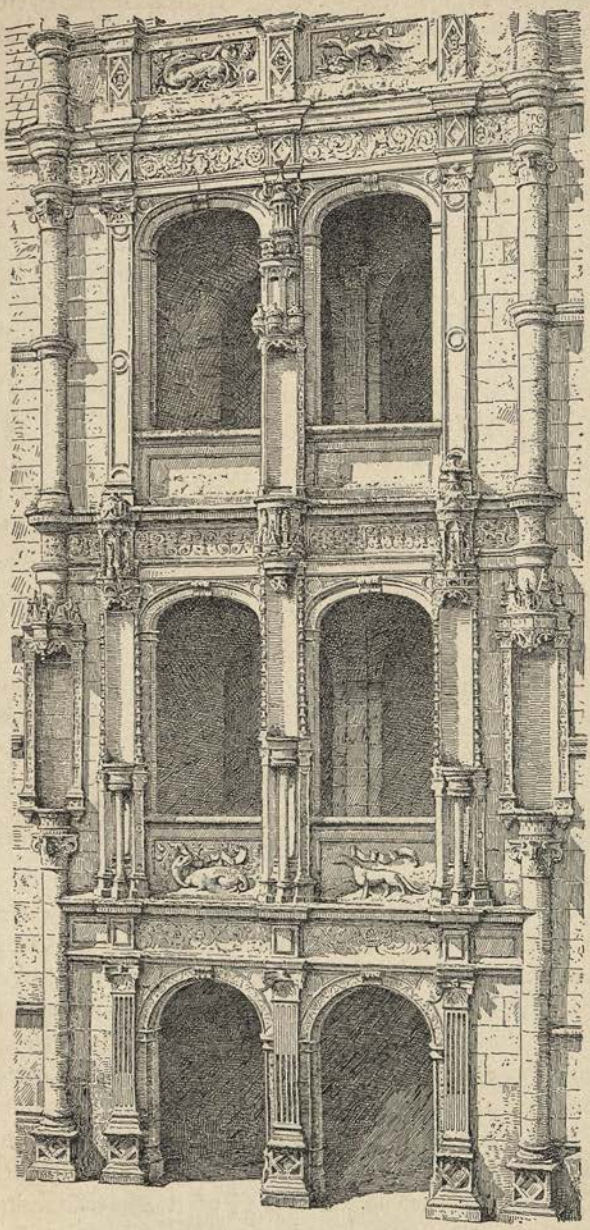


FIG. 112. — Portal of Azay le Rideau.

beauty, it well illustrates the hybrid and factitious character of early French Renaissance design. There was no need of defences, yet round towers are set on the angles simulating those of feudal times, and each one of these is crowned with a low overhanging story supported on corbels, and having a superficial resemblance to the mediæval machicolated gallery. This overhanging attic is carried along each side of the building, and its numerous small square windows are so spaced as to give the intervening wall solids somewhat the appearance of battlements, while steep gables, crowned with spiky pinnacles, and high dormers and chimneys make up a total composition of great picturesqueness. The larger features are all of mediæval form, but the windows are flanked with classic pilasters and crowned with entablatures. The most elaborate, and least admirable, feature of this building is an ornamental bay (Fig. 112), not seen in the general view here shown (Fig. 111), which embraces the main portal. This bay is worthy of analysis because it is a highly characteristic example of French Renaissance design in which distorted neo-classic details are worked into a pseudo-Gothic scheme. The composition is plainly derived from the neighbouring castle of Châteaudun, which was built at the beginning of the sixteenth century, and ornamented in the Flamboyant Gothic style. In Châteaudun (Fig. 113) a staircase tower rises over the main portal of the south façade in four stories. The front of this tower, which is flush with the wall of the façade, is treated as an enriched bay, the upper two stories of it reaching above the main cornice, and being flanked by round turrets overhanging the wall, which is corbelled out to support them. The portal is double, and each upper story of the bay has a pair of large openings. All of these openings have the Flamboyant depressed arches, and the whole bay is flanked by buttresses, while a smaller buttress is set against a middle pier that rises through the composition. All of these parts have the characteristic Flamboyant forms and ornamental details. The openings are splayed, and their profilings have the sharp Flamboyant arrises. The buttresses have the multiplicity of angular members set obliquely, with the simulated interpenetrations, and the niches and canopies, of the latest Gothic style.

Returning now to the portal of Azay le Rideau (Fig. 112), we find this scheme substantially reproduced, but with greatly

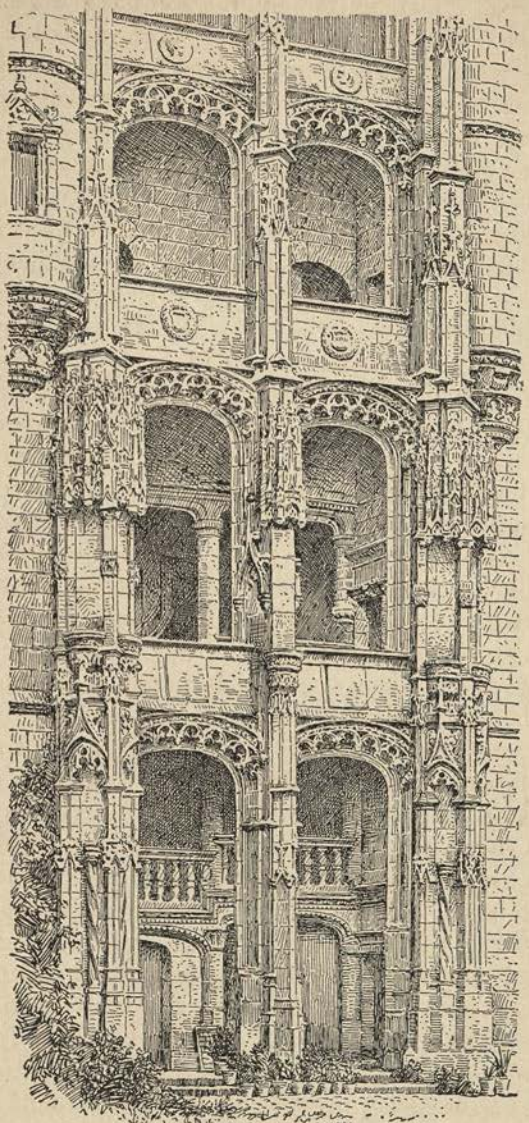


FIG. 113. — Châteaudun.

altered details. In place of the buttresses we have a remarkable combination of columns, pilasters, and other neo-classic ornaments put together so as to produce a pseudo-Flamboyant

Gothic effect. The portals and windows are flanked with pilasters and crowned with entablatures, and the whole is bounded right and left by superimposed columns broken by highly ornamented niches, and banded by the string courses and entablatures. On the first floor over the portal the window pilasters are made to appear as hidden behind tall ornamental niches, composed of many neo-classic and nondescript elements, arranged in the manner of the details on Flamboyant buttresses. Only small portions of the base mouldings of the pilasters appear beneath this filigree overlay. In the story next above, the central pilaster only is hidden in this way, but here a part of the capital, instead of the base, comes into view. The manner in which the pseudo-Gothic features are adjusted to the neo-classic elements of the composition is curious in other ways. The pilasters of the several superimposed orders are, of course, of equal length in each story, and their entablatures make strongly marked horizontal lines. But the nondescript ornaments laid over these orders are carried up to unequal heights, all of them crossing the middle entablature, and the finial of the central one reaching above the architrave of the top entablature, while the lateral pilasters of this upper order are wholly exposed to view, except that the finials of the canopies over the niches below cover parts of their bases. The mixture of neo-classic and pseudo-Gothic forms is carried out in the details of these superimposed ornaments. Under the base of each niche are two diminutive pilasters, set obliquely so as to present an arris in front, like the angular members in Flamboyant buttresses, as in Châteaudun, and between these is a small shaft supporting a corbel which forms the base of the niche. The niche is flanked by slender pilasters set obliquely in conformity with those below, but these pilasters are almost entirely hidden from view by very salient nondescript ornaments worked on the face of each. The mouldings of the grouped bases, which are of different magnitudes, interpenetrate in Flamboyant fashion, and the canopies over the niches are made up of miniature entablatures on curved plans ornamented with filigree, and each of them is surmounted by a group of minute niches with statuettes, and crowned by a finial. The windows have the depressed arches of the Flamboyant style, with panelled dadoes beneath, as in Châteaudun; but their profilings are pseudo-

classic, and they have keystones at their crowns. The total scheme is more mediæval than classic, notwithstanding the free use of neo-classic orders. To produce a continuity of upright lines, and thus emphasize the Gothic effect, the entablatures are broken into ressauts over the pilasters, and are carried around the lateral columns, as before remarked. The double portal is the only part of the composition that is quite free from mediæval elements. The order and the arches are here combined in the ancient Roman manner, as they are, indeed, in the upper stories; but here the arches have the Roman semicircular form, and the order is not overlaid with other ornaments. Classic proportions are not at all observed. The pilasters are short, and are raised on high pedestals, which are necessary to the composition in order to give the effect of adequate foundation for the superstructure. The design as a whole has no reason on structural grounds, nor has it any logic of simulated structure. Such merit as it has is of a purely abstract ornamental kind entirely extraneous to the building. Apart, however, from its factitious general character, and its incongruous details, the château of Azay le Rideau has a thoroughly French character, and is one of the finest monuments of the early Renaissance in the country.

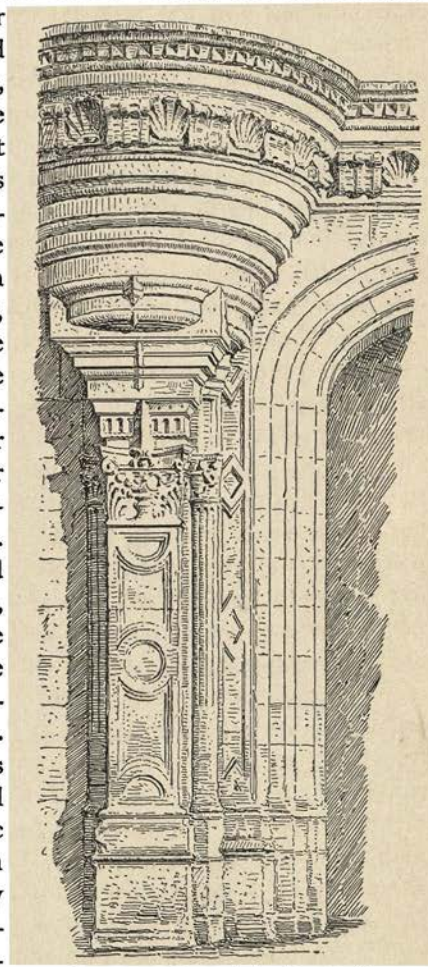


FIG. 114. — Part of the Portal of Chenonceaux.

Among other châteaux contemporaneous with Azay le

Rideau, and of similar character, are Chenonceaux and La Rochefoucauld. Of Chenonceaux the portal (Fig. 114) is worthy of notice as an instance of a different manifestation of the survival of Flamboyant ideas in the treatment of neo-classic details. In this portal we have again the three-centred form of arch, with a keystone and continuous imposts.[1] The jambs and archivolt are in three planes, or orders, of shallow projection, with simple mouldings of semi-Flamboyant effect. No entablature surmounts this portal, but a corbelled cornice supporting a heavy balcony passes over the arch. This balcony has a curved ressaut at each end carried on a massive corbel in graduated rings of overhanging masonry, with a compound support beneath consisting of a stout pilaster and two small shafts. The Flamboyant idea running through this nondescript scheme is shown in the depressed form of the arch, and by the simulated interpenetrations at the imposts of the pilasters.

In La Rochefoucauld we have an instance of a mediæval fortified castle transformed into a palatial residence. The most noticeable features here are the superimposed arcades of the court. In these arcades we have orders of pilasters used in the Roman way to frame in the arches, but these arches have the Flamboyant three-centred form. In the top story the number of arches is doubled, and the entablature over them is crowned with an ornamental parapet and finials. The vertical lines of the superimposed pilasters, made continuous by ressauts in the entablatures and carried up through the parapet by the finials, give a semi-Gothic expression to the ancient Roman scheme.

In those parts of the vast châteaux of Blois and Chambord that were built in the time of Francis I a richer phase of this early French Renaissance architecture is found. The eastern wing of Blois, which had been begun by Louis XII, illustrates this. On the side facing the court the walls are panelled, not as they sometimes were in the earlier buildings, as at La Rochefoucauld, by interpenetrating mouldings of Flamboyant profiling, but by three superimposed orders of pilasters, in which a continuity of upright lines is given by shallow ressauts in the entablatures (Fig. 115). The pilasters are here irregularly spaced

[1] I use Willis's term, "continuous impost," for an impost in which the jambs pass into the arch without the interposition of a capital, and without change of profiling.

in conformity with the window openings of the work that had been begun, and considerably advanced, under the preceding reign; and have the novel addition of ornamented bead mouldings

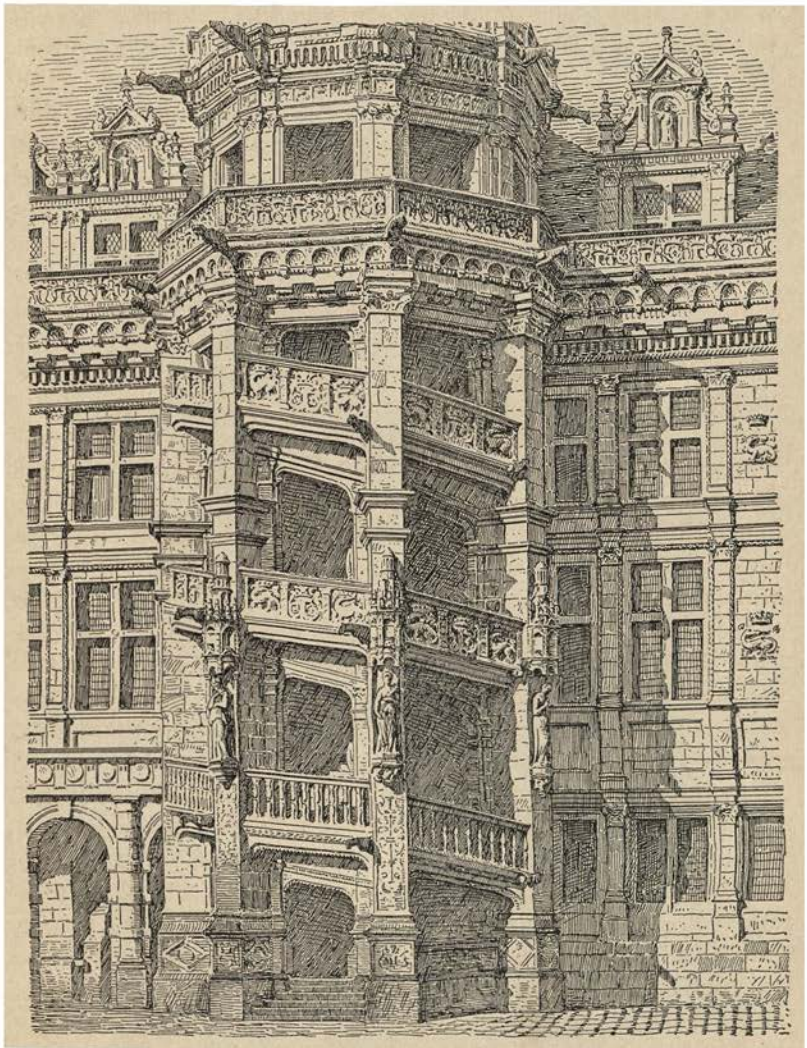


FIG. 115. — Part of the court façade of Blois.

set on the edges of the pilasters, and along the under edges of the entablatures, while in each of the panels thus framed the salamander and crown are carved in relief. In the deep and

elaborate cornice, dentils and modillions and the egg and dart are worked in with Gothic gargoyles and a corbel-table; while a rich parapet crowns the whole, and dormers of picturesque form, with pseudo-classic orders surmounted by gables and pinnacles, rise against the vast high-pitched roofs which are further broken by ornamented chimney-stacks. A survival of the later Gothic habit of design is further shown in the continuity of upright lines obtained by the ressauts already remarked. But the most remarkable feature of this façade is the great polygonal staircase tower that rises through it. Four vast piers like buttresses, reaching from the ground to the main cornice which is carried out so as to crown them, are treated like colossal pilasters with rich Corinthianesque capitals, and are banded above the middle with mouldings of classic profiling. Yet on the face of each of these members is a corbelled niche, with a rich canopy and statue in late Gothic style. These piers are connected by three stages of ramps with panelled parapets elaborately ornamented with small pilasters, carvings in relief, and gargoyles issuing from their base mouldings. The whole composition is crowned with a dormer having a square opening on each side, grouped pilasters on the angles, an entablature with compound ressauts over the pilasters, and with gargoyles reaching from the cornice, and a balustrade over all.

The reader should consider well the meaning of all this, and observe how the persistence of the native French habits of design, without the logic of the former time, was still giving a largely mediæval aspect to works in which details from the Italian Renaissance, modified and combined in strangely new ways, were being more and more freely introduced.

On the garden side this wing of Blois has a different design, and shows a survival of the Flamboyant depressed arch in the window openings necessitated by the form of the earlier façade, which is incased in that of Francis I.[1] The windows of this earlier façade were spaced and proportioned so as to make wide and narrow voids and solids alternate in a very irregular manner. In the work of the sixteenth century, which overlays this, superimposed pilasters are set in pairs on the wider solids,

[1] Du Cerceau's plate (*Les Plus Excellents Bastiments de France*, vol. 2, plate 4) is incorrect, like most of his other plates, in giving the semicircular form to the openings of this façade.

and single ones adorn the narrow piers. The pilasters of the lower order rest on tall pedestals supported on spurs rising out of the batter wall of the basement, while the upper order is set on plinths resting on the entablature of the order beneath. This upper order has a plain corbel-table in place of an entablature, with a simple cornice, and gargoyles over the pilasters. Over this is the novel feature of an open gallery covered by an extension of the main roof which is held up by columns of no distinct order, with a balustrade in each interval. Similar galleries were afterward in some instances produced by extending the roofs over originally uncovered terraces below the eaves, supporting the extension on wooden posts — as at La Rochefoucauld.

The walls of Chambord, the next vast château of the early French Renaissance, are adorned with pilasters as at Blois, though the design below the cornice is much simpler. Above the cornice, however, it is the richest of all the great French châteaux, and with its steep roofs and manifold dormers, chimneys, and central lantern, it presents an aspect which for multiplicity of soaring features resembles a late Gothic building. It is not worth while to give an extended analysis of its redundant details which, with its vast chimneys adorned with free-standing orders, niches, panelled surfaces, and pinnacles; its dormers with overlaid orders of pilasters, pediments, scrolls, and endless filigree ornaments; and its great lantern with inverted consoles on entablatures forming flying-buttresses (where there is nothing to be buttressed), make up a bewildering complex without structural meaning or artistic merit. Viollet le Duc has well remarked that "Chambord est au château féodal des XIIIe et XIVe siècles ce que l'abbaye de Thélème est aux abbayes du XIIe siècle: c'est une parodie."

The same general character, though in less florid development, marks those parts of Fontainebleau which are contemporaneous with Blois and Chambord. This is true also of Écouen, where the architectural scheme is comparatively simple. Instead of superimposed orders the walls of Écouen are adorned with continuous pilasters banded by the mouldings of entablatures that crown each of the stories. These details are in very shallow relief, the wall spaces enclosed by them are not panelled as at Blois and Chambord, and the windows have no fram-

ing members. Even the dormers have a marked sobriety of design, though they are framed with small orders, and crowned with fantastic pediments made up of classic elements and filigree ornaments.

The architect Bullant, who appears to have had a large part in the design of Écouen, was among the first French architects of the Renaissance to travel in Italy. In Rome, as he tells us in his book,[1] he had measured some of the ancient monuments, and in the great portico of the court he reproduced the order of a Roman temple.[2] This portico embraces both stories of the building, and is, I believe, the earliest example in France of the reproduction of an ancient order without any admixture of mediæval details, or Italian corruptions. In the main body of the building it was natural that the architect should modify and adjust his neo-classic details in the prevailing manner of his time; but this colossal portico gave him an opportunity to carry out fully the classic Roman ideas which he appears to have imbibed during his Roman sojourn. It was impossible, however, to make any organic connection between this ancient scheme and the building to which it is attached, and it stands against the façade as an utterly foreign interpolation.

An exceptional building of the early French Renaissance is the château of St. Germain en Laye. The top story of this building is vaulted, and to meet the vault thrusts a series of deep buttresses is ranged along each façade. These buttresses are connected by arches at the level of the floor of the principal story[3] and beneath the main cornice, and entablatures, which crown the basement and the principal floor, break around them. They are adorned with pilaster-strips of Romanesque proportions, connected by small blind arches, capped by ressauts of the main cornice, and pierced with water-ducts ending in gargoyles. The arched windows are in pairs (one pair in each story between each pair of buttresses), and are framed with pilaster-strips and entablatures surmounted with pediments. The balconies formed by the ledges over the lower arches are

[1] *Reigle Géneralle de Architecture*, etc., Paris, 1568.

[2] Said by Palustre, *L'Architecture de la Renaissance*, p. 176, to have been "servilement imité du temple de Jupiter Stator."

[3] These lower arches are concealed from view on the external façades by a basement wall.

enclosed with balustrades, and balustrades connect the buttresses over the main cornice. The roof is very low and invisible, thus there are no dormers, but large chimneys ornamented with blind arcading break the sky line.

Such is the early Renaissance architecture of France. Notwithstanding its factitiousness, and its ornamental incongruities, it still has, as I have said, a distinctly French expression, though it has not the reasonable character of the native art of the Middle Ages in its integrity. But the departure from their own ideals and traditions was destined to be carried further, and at length to reach results which should still more profoundly contradict the true native spirit. This further transformation was wrought during the second half of the sixteenth century under the influence of several noted architects who stand in relation to the French Renaissance very much as Vignola, Palladio, and their followers stand in relation to that of Italy. The art of these men will be considered in the next chapter.

CHAPTER XII

LESCOT AND DE L'ORME

AMONG the architects of the later French Renaissance Pierre Lescot and Philibert De l'Orme were preëminent. The change which they effected gave the French architecture a more marked neo-classic dress, yet still without wholly eliminating its native character. This change was of course analogous to that which had been wrought in Italy by the later designers of that country, but the resulting forms in France were different from those of the Italian art, and were to the last peculiarly French, though, as before remarked (p. 179), not expressive of the French genius in its integrity. This was entirely natural. The architecture of a people inevitably retains much of its original character while yielding to foreign influences. It had been so with the Italian art of the Middle Ages when it was subjected to the Gothic influence, and it could not be otherwise with the French art of the sixteenth century when the later Renaissance wave swept over it.

Lescot and De l'Orme came strongly under the influence of Vignola and Palladio, their Italian contemporaries, and they fully accepted the Italian belief in the superiority of the neo-classic principles of design to those which had given rise to what they considered the architectural barbarisms of the Middle Ages. Lescot, says Berty,[1] "was one of the first French architects to employ the ancient style in its purity," and De l'Orme, according to Milizia,[2] "exerted all his industry to strip architecture of her Gothic dress and clothe her in that of ancient Greece."

Lescot is said to have designed the Fountain of the Nymphs, now known as the Fountain of the Innocents,[3] in Paris, in collaboration with Goujon, the sculptor. In this work there is

[1] Adolphe Berty, *Les Grands Architectes Français de la Renaissance*, Paris, 1860, p. 70. [2] Milizia, *Memorie*, vol. I, p. 404. [3] Berty, *op. cit.*, p. 71.

nothing whatever of mediæval character. In its present condition it is, indeed, very different from what it was originally. It first (1550) stood on the corner of two streets with a façade

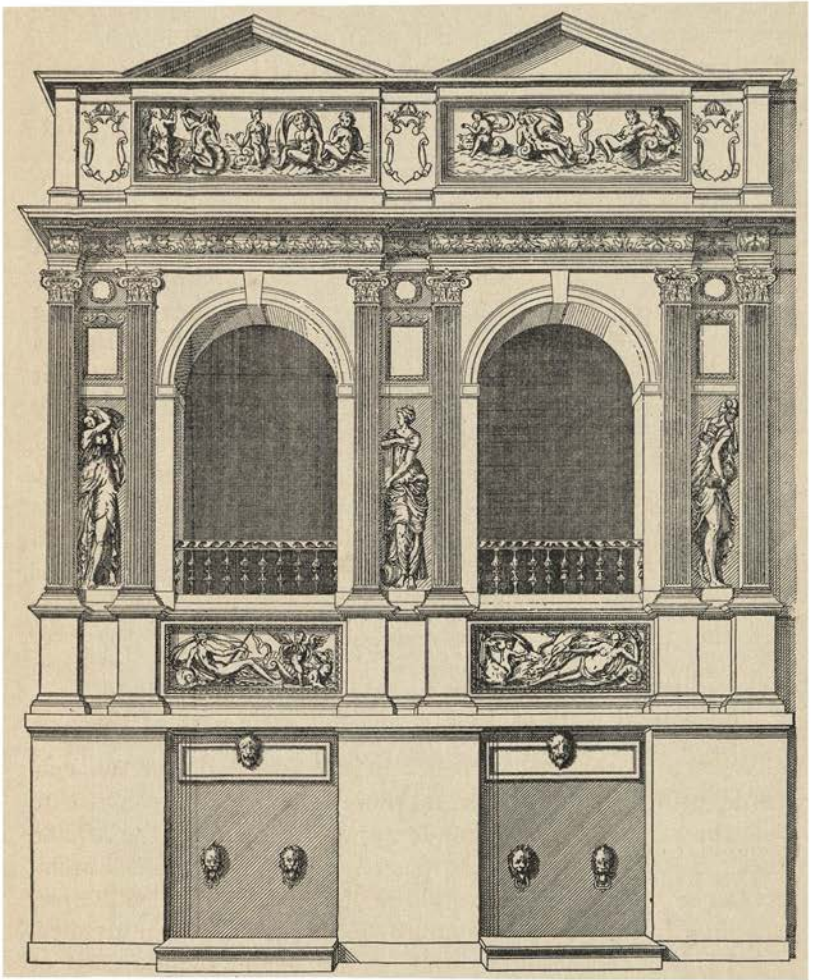


FIG. 116. — Du Cerceau's engraving of the Fountain of the Nymphs.

of two bays on one street and a return of one bay on the other. In 1788 it was taken down and reërected in the square of the Innocents on a square plan, a fourth façade being then added. Figure 116, from an engraving by Du Cerceau,[1] illustrates the

[1] *Les Plus Excellents Bastiments de France*, plate 69.

original design, each bay of which is nothing more than a reproduction of the scheme of a Roman triumphal arch, with a short pediment over the attic. The whole structure is raised on a high basement of plain character with lions' heads for water-spouts. Such pure imitation of the antique does the architect little credit as a designer, and it is hard to understand how such works could have been regarded as monuments of a regenerating art. The sculptures by Goujon which adorn this structure have, in my judgment, no monumental qualities, nor any notable merits of design. Their movements are awkward, and their lines ill composed. The influence of the decadent Italian art is marked in them, without any new qualities that should entitle them to distinction.

Little is known of the early training of Lescot beyond what is told in a poem by Ronsard,[1] from which we learn that in his youth he had occupied himself with painting and geometry, and that at the age of twenty he began the study of architecture. He does not appear to have visited Italy, and his knowledge of ancient art must, therefore, have been acquired at second hand; very likely in great part through Serlio's book which had been published in 1537. A woodcut (Fig. 117) on page 127 of this book,[2] giving the design of an ancient Roman arch in Verona, might have served as a model for the Fountain of the Nymphs. He must also have come in contact with Serlio himself, who in 1541 had been called into the service of the French king.

The capital work of Lescot was the early part of the new Louvre, begun about 1546 on the site of the old castle of Philippe Auguste which Francis I had demolished in order to rebuild in the new style. The new scheme was apparently intended to cover almost precisely the same area that had been occupied by the mediæval structure, and the old foundations were to be utilized in the new building. Thus in conformity with the older castle Lescot's design embraced a square court; but only a part of this project was actually carried out, namely, the wings on the south and west sides. And of these the south wing afterward suffered a damaging alteration by the architect Lemercier who enlarged the court to about four times the area

[1] The lines of this poem which relate to Lescot are quoted by M. Berty in *op. cit.*, pp. 66–68.

[2] *Regole Generale di Architettura di Sebastiano Serlio.*

that Lescot had intended. Thus the only part of Lescot's work which has survived substantially intact is that part of the existing west side which extends from the southwest angle to the great western pavilion. This portion is figured by Du

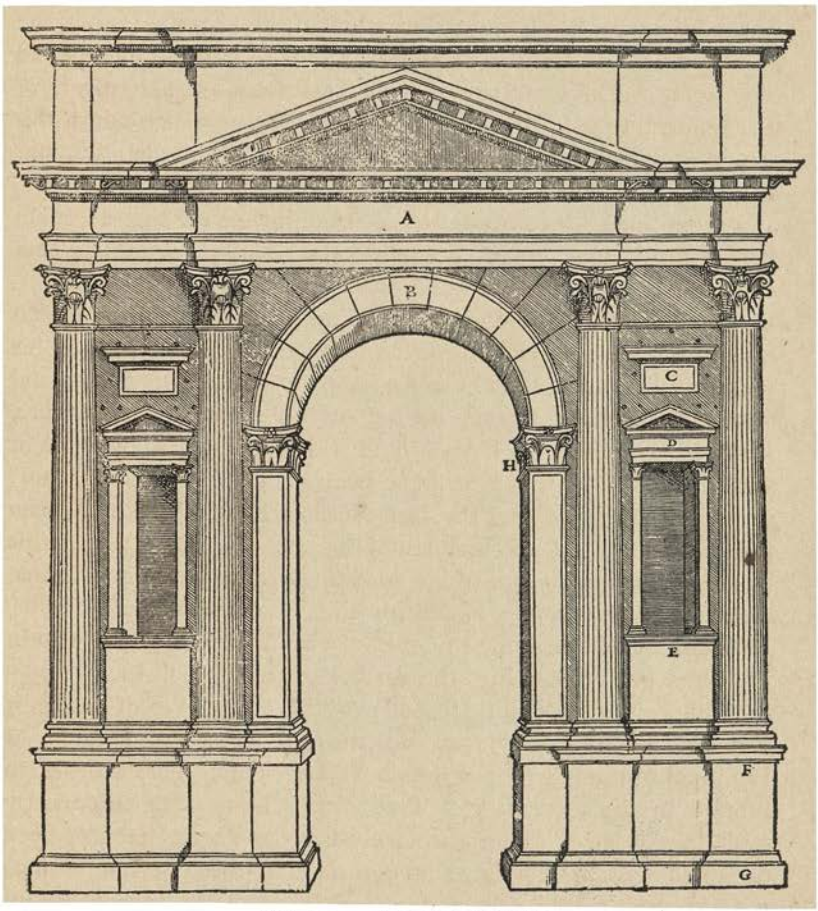


FIG. 117. — Roman arch, Serlio.

Cerceau,[1] and save for some alterations in the timber roof the existing fabric agrees with his print.

In this design (Fig. 118) there is no survival of the character of a mediæval stronghold, though the rectangular pavilions, which break the long façades, and the high pitched roofs are

[1] *Op. cit.*, plate 2.

feeble echoes of the mediæval French traditional forms. It is worthy of notice that Lescot's projecting bays have no meaning apart from their æsthetic effect in the external architectural

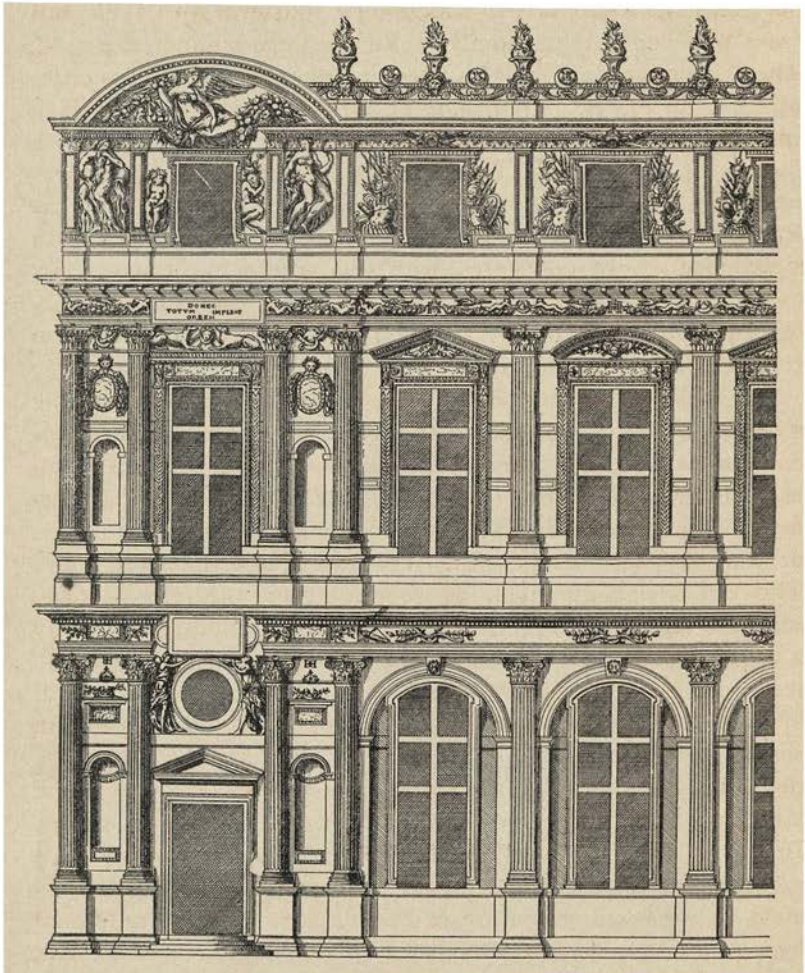


FIG. 118. — Part of Du Cerceau's print of Lescot's Louvre.

scheme. In the feudal castle the towers had of necessity to stand out beyond the curtain walls in order from their loop-holes and battlements to defend them. But the salient pavilions of the Louvre have no function; they do not even materially enlarge the interior, but are purely ornamental features. The

scheme includes two stories and an attic, each of which is adorned with a classic order. In the basement and in the principal story the orders consist of fluted Corinthian pilasters on pedestals, while in the attic short pilasters, with their surfaces panelled in the Lombard Renaissance manner, are used. The principal orders only have complete entablatures, the order of the attic having only a cornice with a frieze which takes in the capitals, and this cornice is surmounted by a parapet with filigree ornamentation. In the intercolumniations of the basement order arches are sprung beneath the entablature in the Roman fashion, each arch embracing a narrow window with a segmental head concentric with the arch, while the window openings of the upper stories are rectangular, those of the principal floor having alternately round and angular pediments on consoles.

In the pavilions we have in each story a variation of the scheme of the Fountain of the Nymphs. The imitation of Serlio's cut (Fig. 117 above) is closer, Corinthian columns being used instead of pilasters as in Serlio's design. But in the basement the architect has made marked changes in the central bay, omitting the arch, and cutting out a portion of the entablature. This last device, of which, as we have seen, the later Renaissance architecture of Italy affords many instances, is not only a violation of the principles of classic design which these architects were professing to restore, but it is a barbarism, because it breaks the continuity of those lines which in such a composition should have the expression of binding the parts together. In the story above the entablature is not completely broken; the architrave and frieze only are cut in order to insert a tablet. In the attic, however, the cornice is cut out completely, and a segmental arch is sprung over the opening to form a pediment as a crowning feature of the pavilion. The traditional logic of French design is thus completely ignored by Lescot, and he abandons himself to capricious methods of composition as completely as the Italians had done. It is surprising not only to find the French people thus following the Italians in their irrational misuse of structural forms in ornamentation, but also to find them, after having produced in the Middle Ages the most living and beautiful forms of foliate sculpture that the world has ever seen, resorting to the heavy and formal festoons

of decadent Roman art, as Lescot has done in these friezes of the Louvre.

Another noticeable characteristic of this phase of Renaissance design in France is its excessive profusion of ornament. The wall surfaces are embossed with reliefs, or set with niches, disks, or tablets until no broad plain surfaces remain. Such extravagance of ornament is characteristic of later Roman, and debased Gothic, but it is foreign to the finest classic, and the pure Gothic, art.

Of the architectural work of De l'Orme little is now extant, and the most of that which has survived has suffered such alterations that we can form from the monuments themselves but an imperfect idea of their original aspect. We have, however, in the fragments that remain, in Du Cerceau's prints, and in the illustrations to his own writings, enough to show that he was a man with little artistic genius, though he had an ardent passion for architecture as he understood it.[1] He was among those architects of his time who went to Rome to study the antique, and he tells us in his book[2] that he dug about their foundations, and made drawings and measurements. His most important work was the palace of the Tuileries, begun in 1564. Of this gigantic scheme only a small part, the central part on the garden side, was completed by De l'Orme, and this was much altered by successive architects before the building was

[1] Viollet le Duc, in his *Entretiens sur l'Architecture*, p. 362, says, "Philibert De l'Orme était peut-être l'artiste dont le goût était le plus sûr, le sentiment le plus vrai, les principes les plus sévères." This estimate appears to me singularly short-sighted, but it is in keeping with the artistic limitations of its gifted author, whose great abilities did not, I think, include the finest powers of artistic judgment. Viollet le Duc's own architectural projects, as illustrated in the *Entretiens*, are enough to show this. A truer estimate is given by M. Berty, in his *Life of De l'Orme*, as follows: "Ayant absolument rompu avec la tradition Gothique, toujours plein du souvenir des monuments romains qu'il avait étudiés en Italie, et qui constituaient pour lui la vraie architecture, De l'Orme, visant sans cesse à la majesté, n'atteignit souvent que la lourdeur. D'un autre côté, trop préoccupé de la recherche d'une beauté rationnelle qu'il demandait plutôt au calcul qu'au sentiment, procédé pernicieux qui égare a coup sûr, il ne peut éviter les bizarreries et même les gaucheries dans ses conceptions. . . . C'est sur le terrain de la science qu'il a vraiment dominé tous ses rivaux, en acquérant des droits incontestables à la reconnaissance de la postérité." (*Les Grands Architectes Français*, etc., p. 36.) It was the scientific ability of De l'Orme that Viollet le Duc could best appreciate, his own genius being more scientific than artistic.

[2] *Le Premier Tome de l'Architecture*, etc., Paris, 1567.

destroyed in 1871. The plan, as given by Du Cerceau (Fig. 119), is symmetrical, but it is broken by projecting bays and angle pavilions more pronounced than those of the Louvre.

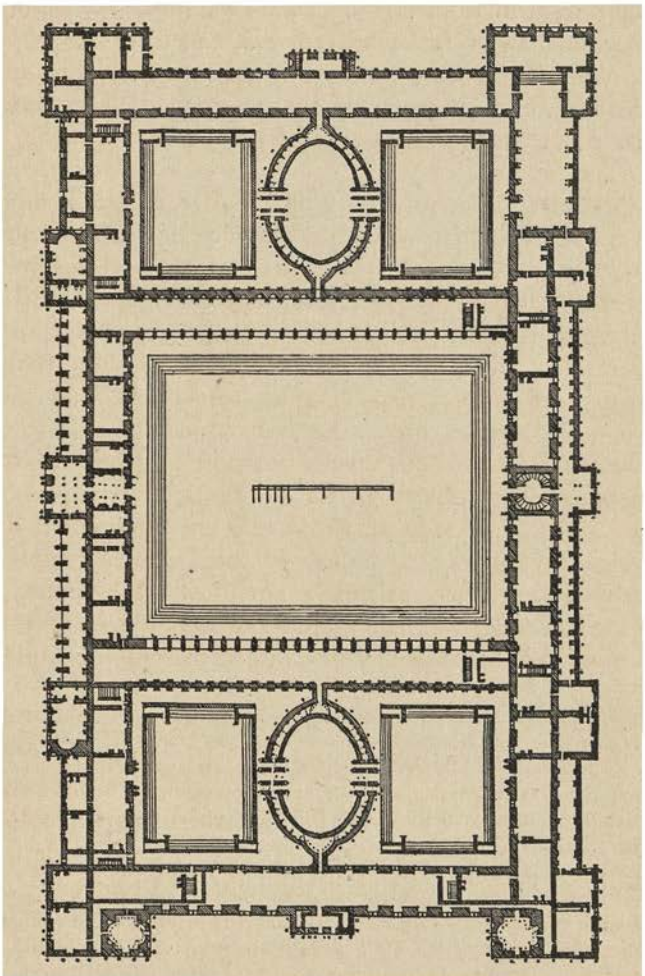


FIG. 119. — Plan of the Tuileries, from Du Cerceau.

These features, survivals of the mediæval plan, distinguish the French Renaissance architecture from that of Italy to the last.

The external façade (Fig. 120) has a single story with an attic of broken outline, and in it the architect made use of a peculiar

form of Ionic column of which he speaks[1] as follows: "I make here a short digression to speak of the Ionic columns which I have employed in the above-mentioned palace of her Majesty the Queen Mother.[2] . . . The said columns are sixty-four in number on the side facing the garden, and each one is two feet in diameter at the base. They are not all of one piece, since I could not find so large a number of such height as was necessary. . . . I have fashioned them as you see (Fig. 121), and with

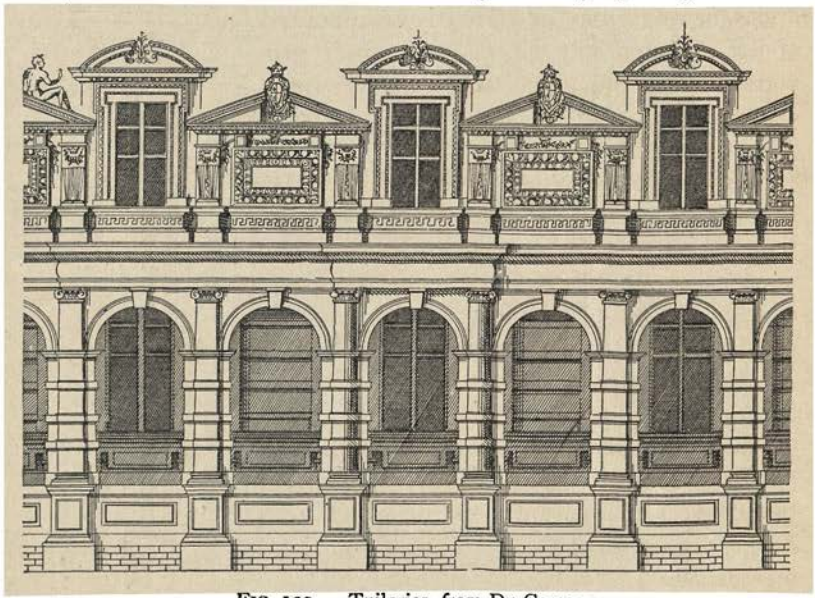


FIG. 120. — Tuileries, from Du Cerceau.

suitable ornaments to hide the joints; which is an invention that I have never yet seen in any edifice either ancient or modern, and still less in our books of architecture. I remember to have made nearly the same in the time of his late Majesty Henry II, in his château of Villers Cotterets, in the doorway of a chapel which is in the park, and it was very graceful, as you may judge from the figure which I give." Further on he proposes that this shall be called the French order, saying: "If it was allowable for the architects of antiquity, in different nations and countries, to invent new columns, as the Romans invented the

[1] *Op. cit.*, p. 156.

[2] The Tuileries was designed by De l'Orme for Catherine de Médicis.

Tuscan and the Composite, the Athenians the Athenian, and, long before the said Romans, those of Doris the Doric, of Ionia the Ionic and Corinthian, who shall forbid us Frenchmen from inventing some, and calling them French, as those might be called which I have invented and used in the porch of the chapel of Villers Cotterets?" Of this column De l'Orme, in his book, gives several variants, showing how the salient drums, or rings, may be variously ornamented or left plain, or may be varied in their proportions; and he gives also a design for a doorway (Fig. 122)[1] in which he employs a Tuscan order treated in this way.

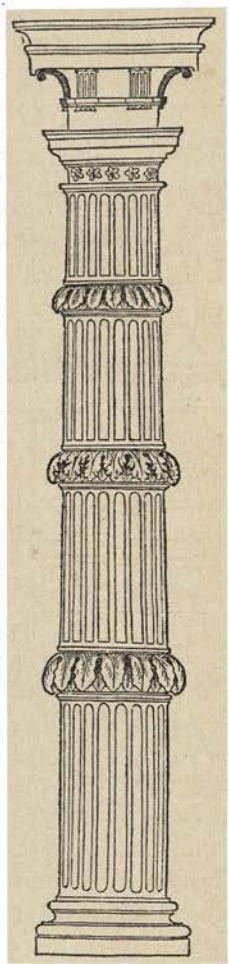


FIG. 121. — De l'Orme's column.

It is hard to conclude what to think of De l'Orme's claim to this column as his own invention, and of his statement that he had never seen one of its kind in any building, or in any book of architecture; for such a column was not a new thing, though it may not before have been used in France. Several examples of practically the same column occur in Serlio's book, which was published in 1537 when De l'Orme was but twenty-two years of age,[2] one of which, in a design for a doorway, is here (Fig. 123) reproduced.

Of this doorway Serlio says: "Although Doric doorways may be designed in other ways, yet most men are pleased with novelty, and with that which is not too common, and they have satisfaction especially from that which, though being mixed, still retains its character, as in this doorway where, although the column, the frieze, and other members are broken, and covered with rustic work, nevertheless the form is seen well defined in all its proportions."[3] He does not affirm that this novelty was

[1] *Op. cit.*, facing p. 240.

[2] Assuming that De l'Orme was born in the year 1515. Cf. Berty, *op. cit.*, p. 1.

[3] *Op. cit.*, bk. 4, p. 26.

his own invention, but he seems to imply that it was. However this may be, he was writing long before De l'Orme could have produced such a column as his design shows. The château of Villers Cotterets built for Henry II, in which De l'Orme

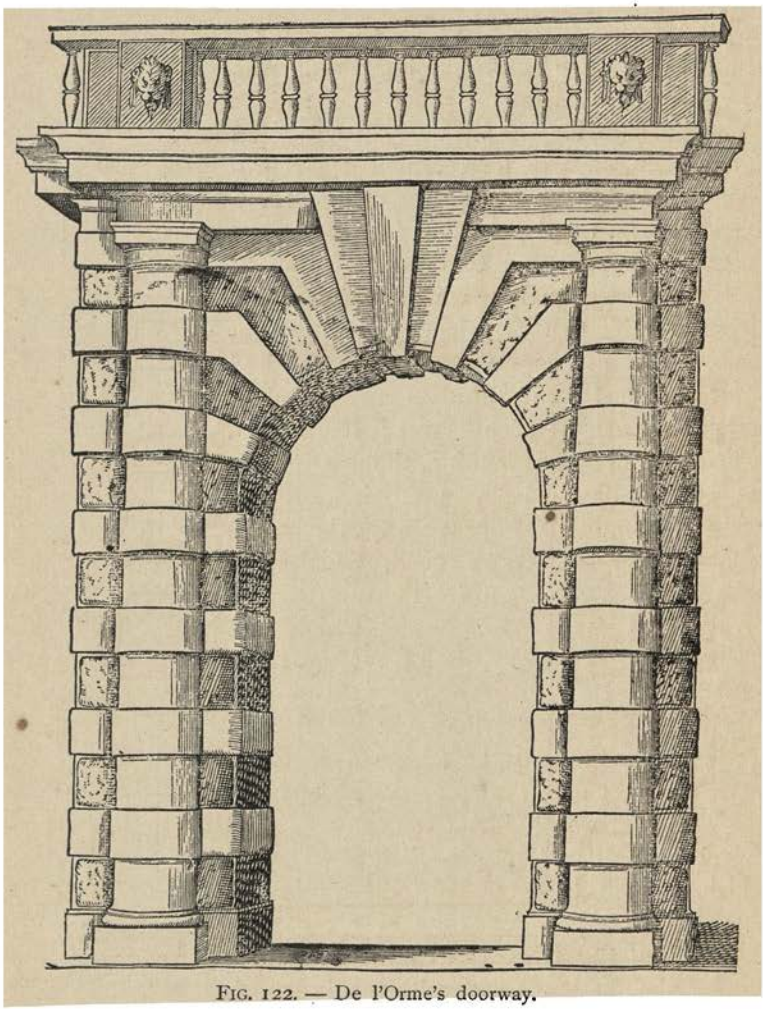


FIG. 122. — De l'Orme's doorway.

remembered to have made columns somewhat like those of the Tuileries, could not have been begun before 1547, the year of Henry's accession, and ten years after Serlio's book was published.

An ancient adumbration of this form of column occurs in the Porta Maggiore in Rome, where it has the appearance of an unfinished work, the drums being roughly shaped to be finished after they were set up, in the customary ancient manner.

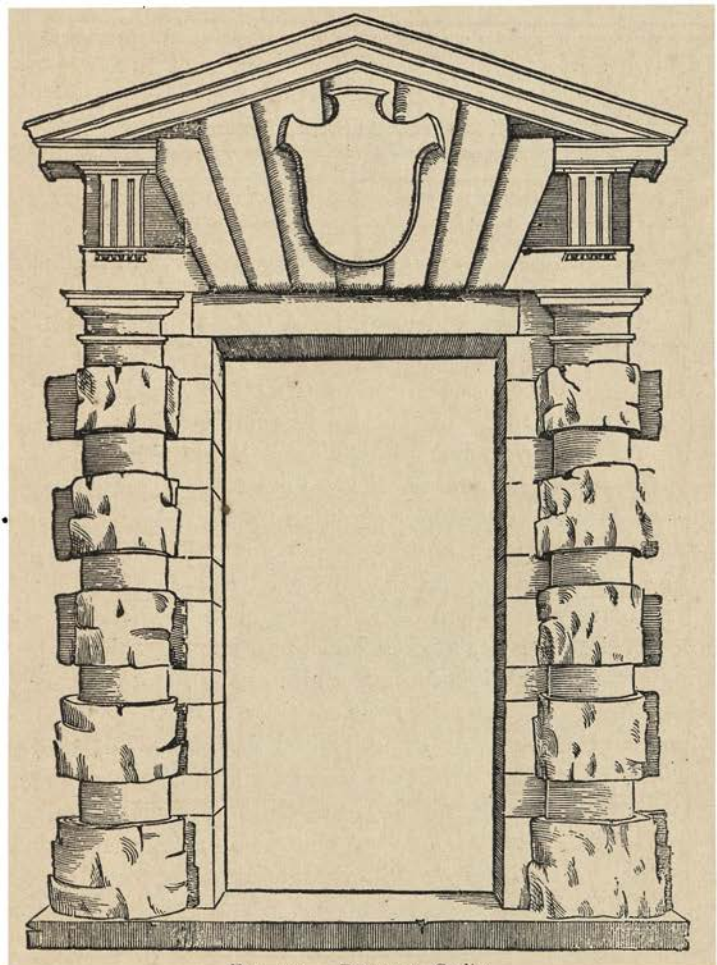


FIG. 123. — Doorway, Serlio.

Such an example may well have suggested to the architects of the Renaissance the idea embodied in Serlio's cut. Sansovino made use of this form of column in the façade of the Zecca in Venice, which was commissioned by the Council of Ten in

1535, and at Genoa, in the wall that was built to enlarge the circuit of the city, there is a portal bearing the date 1553, in which the scheme figured by Serlio is carried out. This peculiar column had therefore undoubtedly been in existence, both in a book of architecture and in actual monuments, before De l'Orme was writing. It is, of course, quite possible that he may have devised his scheme in ignorance of the Italian examples, but whether he did or not is for us a matter of little importance. It is, I think, an architectural monstrosity, and reflects little credit on its designer.

It may be further remarked concerning De l'Orme's claim to this column as his own invention, that it expresses an idea which was at the bottom of most of the architectural misconceptions and mistakes of the Renaissance, the idea that architectural excellence may result from independent personal effort to be original. I think it may be said that the artistic aberrations of the Renaissance arose largely from this false notion. The conscious effort to be original in architecture is inevitably disastrous. The personal contributions of individuals in architectural development consist of little more than small improvements on lines of endeavour common to large bodies of men. The aggregate of such improvements finally become conspicuous, and mark fundamental changes of architectural styles; but the part of any individual in such changes is hardly noticeable. Noble architecture has always been, and must, I think, always be, mainly a social, communal, and national, not a personal product. De l'Orme failed to consider that the ancient orders were not inventions of individual designers, but the outcome of a process of evolution toward which the ingenuity of large numbers of men through long periods of time had contributed. He thought that he might himself invent a new order, and call it French. He ought rather to have called it by his own name, for it was not French in the sense of being a product of the collective French genius. Had he and his contemporaries had more discernment, they might have realized that a true French order was already in existence in that very Gothic art which they vilified, that the shaft and its load of the twelfth-century national style was such an order, a true evolution out of the ancient orders superbly adapted to new conditions.[1]

[1] Cf. my *Development and Character of Gothic Architecture*, p. 304 *et seq.*

As for De l'Orme's façade for the Tuileries, as an architectural composition, little in the way of praise can, I think, be said. The basement arcade (Fig. 120, p. 202) is but an adaptation of the wearisome Roman scheme of pier and arch overlaid with an order in which the Roman form of column gives place to the peculiar one just described and called his own invention. This deformed column has an Ionic capital, and De l'Orme tells us that he employed the Ionic order here because it had been as yet little used, and "because it is feminine, having been invented after the proportions of women and goddesses,"[1] and is therefore suitable for the palace of a queen. In this façade the monotony of the long range of arches with their orders is partly relieved by a ressaut in the entablature over every fourth bay, and this ressaut only is supported by columns, pilasters of similar character being used in the intervening bays. The attic story reproduces with variations some of the architectural vagaries of Vignola and his followers. Tall, rectangular dormers alternate with oblong panels crowned with broken pediments, and flanked with coupled hermæ. In this composition the native French characteristics of design survive in hardly anything more than the broken outline of the attic, and the steep roof behind it.[2] That such architecture is shaped on mathematical proportions, and has an orderly and rhythmical distribution of parts, does not make it good architecture. Proportion and rhythm of this mechanical kind cannot, as I have before said, make a fine work of art.[3]

What we know of other important works by De l'Orme, as the châteaux of Anet and Saint Maur, shows the same lack of a fine artistic sense. The lay-out of these vast pleasure-houses may be well adapted to the requirements of the courtly life of

[1] *Op. cit.*, p. 155. The fanciful notion that the Ionic order was designed after female proportions is derived from Vitruvius, bk. 3.

[2] The roof is not shown in Du Cerceau's print.

[3] Viollet le Duc, I may say again, appears to me greatly to overestimate De l'Orme's artistic powers when he says, "Dans les œuvres de Philibert De l'Orme on constate une étude attentive et soigneuse des proportions, des rapports harmonieux qui semblent les plus simples, mais qui cependent sont le résultat d'une connaissance parfaite de son art et des moyens mis à sa disposition," and when he speaks of the Tuileries as follows: "C'était bien là une architecture de palais grande et noble par ses masses, précieuse par ses détails." *Entretiens sur l'Architecture*, vol. I, p. 363.

the time. De l'Orme understood the needs of this life, and was ingenious in providing for them, but such ingenuity constitutes but a small part of an architect's equipment, and may exist

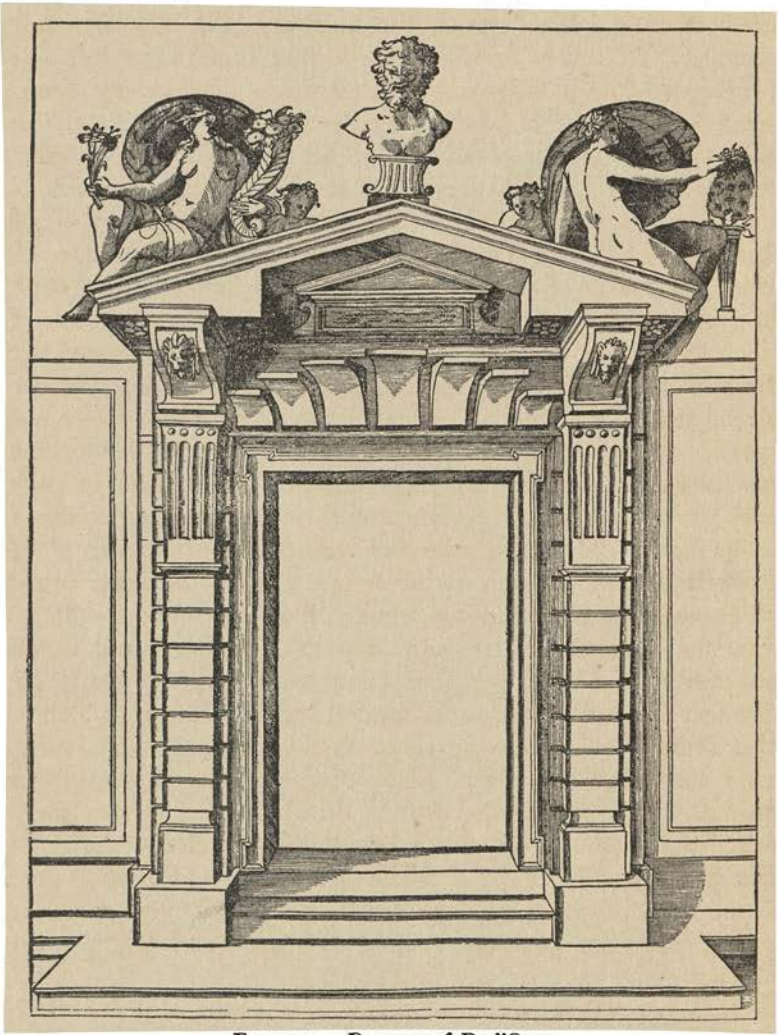


FIG. 124. — Doorway of De l'Orme.

without any artistic aptitude. It is only in so far as such ingenuity is accompanied by a genuine artistic sense that a fine work of art can be produced. De l'Orme undoubtedly worked with a steady regard for what he considered artistic design, but

his works show, I think, that he was devoid of true artistic genius. If further illustration of this be desired, it may be abundantly found in the numerous architectural projects published in his book, of which the doorway (Fig. 124) is a fair example.[1] Of this composition the author remarks as follows: "I give you here following another form of doorway being square and straight in its covering, and having pilasters at the sides, in which one sees only the plinths of their bases under the said pilasters, which are larger at the top than at the bottom; which is the contrary of the columns and pilasters made according to measure [*i.e.* according to neo-classic proportions?] which are narrower at the top than at the bottom. But such an invention is produced according to the suggestion and fancy that presents itself, like many others; which, provided the proportions are well observed, are always found to have a pleasing effect, which is an easy thing to do by those who have experience and skill in architecture. You see how in this design which I figure, in place of capitals mutules in the form of consoles carry the soffit of a tympanum or frontispiece, which is cut out, as is seen, and has its cornices above and ornaments on acroteria, as may be seen in the figure with all the other ornaments, and pieces cut out which make the covering of the doorway, and above a tablet with another tympanum and other ornaments. To describe all in detail would require too much time, but you can easily understand from the drawing, which is of a Doric doorway having three steps which are well shown, as in the other doorways, when they are raised above the ground." These remarks, like the drawing itself, show clearly that design with De l'Orme was a matter of purely capricious fancy, regulated only by a mechanical system of proportions. If the rules of proportion be "well observed," he thinks that such a crazy composition as this, with its foolishly deformed members, may have a "pleasing effect."

It is not worth while to follow this phase of the French Renaissance art much further, but Du Cerceau gives one other design that is worthy of a moment's attention for its freakish irrationality and, I will not hesitate to say, ugliness, the project for the château of Charleval, begun for Charles IX, but not far advanced in construction at the time of his death, and never

[1] *Op. cit.*, bk. 8, chap. 9. The pages here are not numbered.

completed. The exterior façade of the *basse-court* is divided into a long series of bays (Fig. 125) by colossal rusticated pilasters of two orders, embracing the two stories into which the elevation, above the basement, is divided. Each pilaster is crowned with a section of an architrave and frieze, in the form of a ressaut of

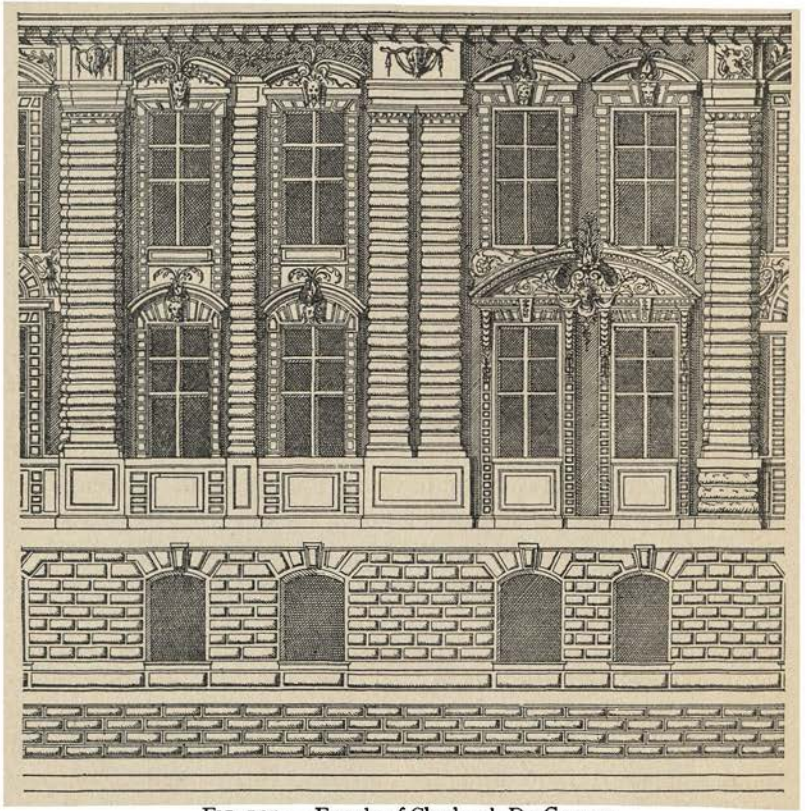


FIG. 125. — Façade of Charleval, Du Cerceau.

two orders, which interpenetrates the bed mouldings of the continuous cornice. Since the architrave and frieze are not carried along the intervening walls, the pilasters have no real entablature to support even in appearance. Another unmeaning freak of design in this façade is the kind of variation of the details of the several bays which it exhibits. The rectangular windows are in one bay surmounted with round archivolts, in the next with curved pediments, in another with angular pedi-

ments above and curved ones below, in another with curved pediments above and round archivolts below, in still another with curved pediments above and a single one embracing both windows below; and so on with continued change with no purpose but that of mere change.[1] Viollet le Duc[2] commends the architect of this façade for seeking what he calls a grand disposition without abandoning the logical principles of his predecessors. But the great French master appears to me to err in his reasoning here, as frequently elsewhere in his discourse on the architecture of the Renaissance. The great order of Doric pilasters used in this façade fills, he says, exactly the function of buttresses, and he then proceeds to defend the whole scheme by saying that, "Taking the order as a buttress it is possible, without violence to reason, to cut it by a floor" (*i.e.* to divide the space between the pilasters into two stories). But there is no sense in taking the order as a buttressing system, for there is nothing in the structure to require buttressing; and if there were, the pilasters of an order, even though doubled, as in this case, would not form an effective buttress system. It is in nothing but the general arrangement of the main lines that such a composition can be said to bear any resemblance to an organic mediæval system in which buttresses have a function, and are shaped so as to express it.

The interior façade of the same building (Fig. 126) presents a different scheme. The great order here has fluted pilasters, and the division of the building into two stories is not expressed on the outside. Viollet le Duc remarks on this façade as follows: "The architect wished here not only to accent the great order more clearly, but also to hide entirely the floor of the upper story;[3] and in adopting this scheme, contrary to the logical principles of the architects of the Middle Ages, he has carried it out with remarkable skill. The line of the floor, naturally placed at the level *A*, is cut by arched niches, so that the eye does not suspect its existence, and

[1] It need hardly be said that such variety is very different from that which results from an active inventive spirit, as where in Gothic art some new constructive idea gives rise to change, or where in sculptured ornamentation a teeming fancy finds expression in varied forms.

[2] *Entretiens*, vol. I, p. 374.

[3] But why should an architect wish to do any such thing? The fact that he did so shows again the factitious and unreasonable character of this Renaissance design.

is forced to embrace the whole front as if it were one stage." And he adds: "C'était là l'œuvre d'un artiste consommé."[1] Thus in one case the architect is lauded for employing the order like a buttress system to justify its embracing two stories, while in the other he is praised for giving a decep-

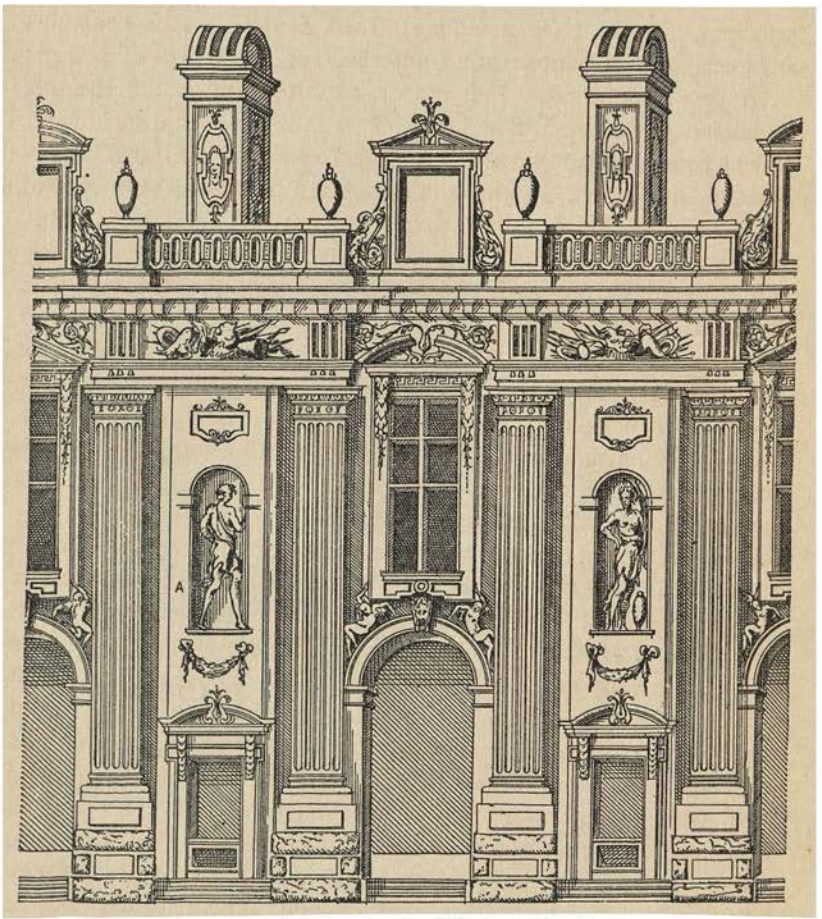


FIG. 126. — Interior façade of Charleval, Du Cerceau.

tive appearance of only one story; so that this part of the design may, as the writer says in another place, be in better scale with the order. But the distinguished author betrays embarrassment in dealing further with these architectural incongruities of

[1] *Op. cit.*, p. 375.

Renaissance design, and after remarking that the architects of this time have resorted to various devices for overcoming the difficulties arising from the lack of harmony between design and construction ("entre la mode d'architecture et les convenances"), which, he says, have occasioned them much torment, he exclaims (p. 376): "Voilà cependant oú conduit l'oubli des principes vrais." It is indeed far into devious paths that the architect is led by departure from the true principles of design.

A few remarks on the church architecture of the French Renaissance may be added here. It was natural that in church architecture the mediæval structural forms should largely survive. The French people could not adopt those semi-classic basilican forms of building that were natural to Italy. Thus, while now professing to despise their own noble Gothic art, they still retained through the sixteenth century the later Gothic structural system with no essential modification. This is well illustrated in the church of St. Eustache in Paris, which was begun as late as 1532. It is a very large cruciform Gothic structure, with double aisles and a range of side chapels, overlaid with Renaissance details. Pilasters and entablatures, variously distorted in order to fit them to the Gothic proportions and functions, take the place of vaulting shafts and string courses in the interior of the nave, while on the outside similar members are used with less distortion because of a different division of the stories giving proportions more nearly agreeing with those of classic art. The chapels opening out of the outer aisles have only half the height of these aisles, and thus the exterior has two stories where there is but one inside. An entablature crowns each of these stories, and the upper one has a pseudo-Doric character. The buttresses above the chapels have two superimposed orders of pilasters, and are crowned with urns on pedestals. Thus was a frankly Gothic structure made agreeable to the French taste of the sixteenth century by a barbarous misapplication of mixed and distorted classic details.

The persistence of Gothic structural forms is shown further in the church of St. Etienne du Mont, begun in 1517. In the parts belonging to the original construction almost no classic details occur. It is Flamboyant Gothic of a peculiar type in which vaulting of almost true Gothic form is sustained by plain

cylindrical columns of unusual height. The church has no triforium, but the columns are connected by arches at the usual triforium level, and these arches carry a balustraded passage-way. The archivolts of this arcade have classic profiles and keystones, and the balustrade is of neo-classic form. In the west front, begun in 1620, neo-classic features are adjusted to Gothic outlines, and the central portal, in the form of a Roman triumphal arch, is furnished with columns modelled after those of De l'Orme which he claimed as his own invention.

The church of SS. Gervais and Protais at Gisors has a Flamboyant west front in parts of which Renaissance features have been inserted in different degrees of compromise with Gothic forms and adjustments. The north tower below the cornice has no such features, but the south tower has been completely masked by a late Renaissance covering in three stories of pseudo-classic orders of which the uppermost is incomplete. The main portal is flanked by pilasters, and has splayed jambs and a splayed archivolt, with an entablature at the impost. A segmental arch over this supports a ledge on which is set a tabernacle of three arches, faced by a Corinthian order having no continuous entablature but only entablature blocks, and an attic over the central arch crowned with a curved pediment. It is unnecessary to analyze this west front further; it presents one of the most confused jumbles of incongruous elements anywhere to be met with.

A different manifestation of Renaissance caprice is found in the florid exterior of the apse of St. Pierre of Caen, which is made up of details of a sixteenth-century Lombard character applied to a Flamboyant structural scheme. The round arch and the complete circle take here the place of the pointed forms, and pilasters against the angles have short Flamboyant buttresses set against them, the faces of these buttresses being treated like Lombard Renaissance pilasters.

One of the most remarkable designs to be found in the Renaissance church architecture of France is that of the portal of the north transept of St. Maclou of Pontoise. It belongs to the early period, and is much like what we have seen in the portal of the château of Azay le Rideau (p. 182). The opening is round-arched and has a narrow splay. It is flanked by pilasters and crowned with an entablature surmounted with a fanci-

ful pediment of broken outline, ornamented with a tablet and death's-head, and flanked by finials of nondescript design. This portal is again flanked by colossal pilasters, rising from pedestals almost as high as the arch impost, and reaching to the cornice at the level of the aisle roof. Against each of these pilasters a short, fluted column, with a capital of pseudo-composite form, rises from a pedestal engaged with the pilaster pedestal. The portion of the pilaster that rises above this column is treated like a niche, with a base resting on the capital of the column, and with an ornamental canopy above that rises through the capital of the pilaster.

It is unnecessary to extend further these tiresome descriptions. The foregoing examples are enough to show how irrational was the use made of neo-classic details in the church architecture of the French Renaissance, and how they were engrafted on a Gothic structural scheme. It was in this manner that the French architects of the time sought to "reform the Gothic and bastard styles."

CHAPTER XIII

ARCHITECTURE OF THE RENAISSANCE IN ENGLAND

I. *Elizabethan Art*

WHEN the need for feudal strongholds had passed, and the conditions of life in the open country had become peaceful, a type of domestic architecture arose in England which assumed its most characteristic form in the early Elizabethan Age. The best features of this architecture were of native growth out of the humbler forms of mediæval domestic building, the feudal castle, and the latest phase of Perpendicular Gothic. These features are mainly the rectangular plan, with plain enclosing walls in long blocks broken by projecting bays, and with large mullioned windows, high-pitched roofs, and tall chimney-stacks. The better form of early Elizabethan dwelling on a large scale had the plain, external character of the traditional yeoman's house. It was planned with some regard for convenience, was admirably suited to the climate, and was expressive of that pleasant and dignified home life which is peculiar to England. It is picturesque and cheerful in aspect, but has little other architectural character than such as results from adaptation to needs, straightforward logic of construction, and generally good proportions. It embodies the essentially English idea, as expressed by Lord Bacon, that, "Houses are built to live in, and not to look on."[1] And while this remark may seem to ignore architecture as such, *i.e.* the fine art of beautiful building, it expresses a fundamental principle; for to build a house to live in, shaped for the needs of civilized human life, is to secure the primary condition of good architectural effect. And no domestic architecture in Europe has had more genuine charm for the eye than that of England of the Elizabethan time in its integrity, as it may be seen, for instance, in the greater parts

[1] *Essay on Building.*

of Haddon Hall; St. Johns, Warwick; Hambleton Old Hall, Rutland; North Mymms, Hertfordshire, and others.[1]

But, unhappily, English life among the upper classes in the sixteenth century was not without sophistication. Many of the great houses were built, not for convenience and propriety, but to gratify a spirit of ostentation and pedantry. False notions of symmetry were allowed to control design at the expense of fitness, and classic details, even more grotesquely disfigured than in Italy and France, and combined with elements of nameless character, began to overlay the walls, and break the sky-lines. The formal regularity and awkward composition of Hardwick, and the ludicrous pseudo-classicism of Burghley House, with its chimneys (Fig. 127) in the form of Doric orders, are among the numerous instances of this. All that offends the eye in the English palatial architecture of the sixteenth and seventeenth centuries is due to these sophistications, which largely subverted the native good sense and sound craftsmanship. "This was," says Cunningham, "a style of architecture strangely compounded, and neither in the weak wildness of its combinations, nor in the flimsy variety of its materials, was it made to endure. Plaster, terra-cotta, paint, tiles, wood, iron, and brick, even when united with all the skill of the most exquisite art, cannot long resist the rapid wear and tear of such a humid climate as ours. Those unsubstantial structures, with all their dazzling incrustations, are passed or passing from the earth: nothing is lasting but hard massive stone, impenetrable cement, and scientific combinations."[2] It ought to be said,

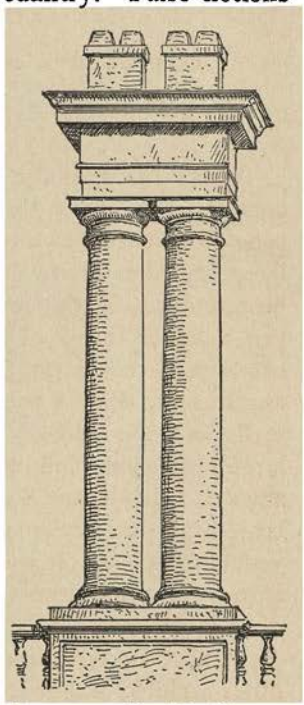


FIG. 127.— Burghley House.

[1] These houses are figured by Mr. Gotch in his *Architecture of the Renaissance in England*, plates 7, 12, 20, and 66.

[2] *The Lives of the Most Eminent British Painters, Sculptors, and Architects*, London, 1831, vol. 4, p. 85.

however, that whatever flimsiness of material entered into the composition of these buildings was confined to ornamental details, and chiefly to the interiors. The main body of the Elizabethan structure was of solid and well-executed masonry. Mr. Bloomfield points out that these houses were built by Englishmen and ornamented by foreigners.[1] And it is certainly true that in plan and outline they have little foreign character. Most of the plans of the native architect, John Thorpe,[2] appear, indeed, to show a French influence, but in the larger features of the elevation they are English. It is thus in the ornamental details chiefly, which seem to have been wrought in part by foreigners and in part by native craftsmen striving to conform to foreign ideas, that we find the strangest aberrations of design. A few examples will serve to show the character of this art.

The façade of the north side of the court of Kirby Hall, for instance, is divided into bays by colossal pilasters of hybrid style, which have not even a semblance of structural meaning, since they carry only ressauts of an entablature, the total height of which is less than the diameters of the pilasters. From each of these ressauts rises a slender pedestal, against a low attic wall, surmounted by finials resting upon the cornice (Fig. 128). The central bay, enclosing the entrance to the court, is wider than the others, and the pilasters here are panelled, and have arabesques in relief, while the others are fluted. The façade is in two stories, their division being marked by an entablature; the lower story has an open arcade, while the upper one has a rectangular window in each bay crowned with a pediment.[3]

The general scheme has no English character, and it so nearly resembles that of the court of Charleval, in France, (cf. p. 212) as to suggest that its designer may have been influenced by the French composition. The effect of the scheme,

[1] *A History of Renaissance Architecture in England*, by Reginald Bloomfield, M.A., London, 1897, vol. 1, p. 3.

[2] Almost nothing is known of John Thorpe beyond what may be gathered from his numerous drawings preserved in the Soane Museum. He was working during the latter part of the sixteenth century, and appears to have been the original designer of some of the larger houses of that time, the plans of which are contained in the Soane collection.

[3] These windows are said by Gotch, *op. cit.*, vol. 1, p. 34, to have been inserted by Inigo Jones. An attic over the central bay is said to be also by him.

as a whole, from the point of view of structure, is curious with its great pilasters of unusual projection, which have the function of supporting nothing but miniature pedestals and finials. In a general view the low attic wall has somewhat the effect of an entablature, though it is behind, and not over, the pilasters; but considered as an entablature its frieze is encumbered with the pediments of the windows which rise against it. The windows are, however, an alteration, and the original

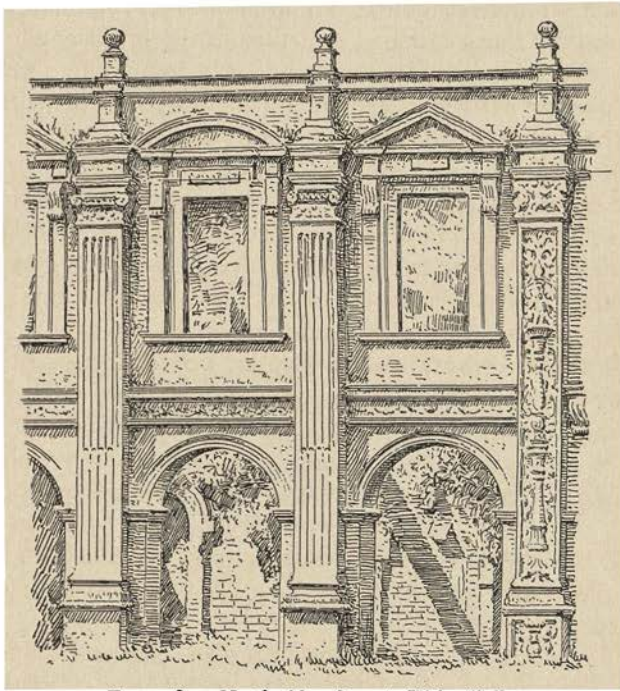


FIG. 128. — North side of court, Kirby Hall.

scheme may be better judged of from the opposite, or south, side of the court. Here the attic has distinctly the appearance of an entablature of somewhat suitable proportions for the order; though, here too, it is behind the pilasters, and does not rest upon them. The façade on this side is in one story, with a tall mullioned and transomed window in each bay. With a proper entablature the scheme would not be a bad one. The wall being almost wholly eliminated by the great window voids, the order would have the true function of upholding the roof if a

true entablature and the roof were where they ought to be. But not only is the attic wall, substituted for an entablature, in retreat of the pilasters, but the roof rises from behind the attic, so that this last becomes a parapet.

At the centre of this façade of one story is a porch of two stories with a tall attic and a gable of ogee outline flanked by finials. This porch has an order of fluted Ionic pilasters in the ground story, an order of Corinthian columns above, and a small order of Corinthian columns in the attic. The pilasters and columns of the first and second stories respectively, are in pairs on each side of an opening, and the entablature in each of these stories has a ressaut over each pair. The pilasters of the ground story are raised on a panelled podium, while the columns of the upper story, and of the attic, are carried on consoles. The attic has no openings, and the columns of the small order here are equally spaced, with narrow intercolumniations, and an entablature block over each column in place of a continuous entablature. The ground story opening has a plain, round arch, while that of the upper story, which is arched also, is framed with a stilted order, and crowned with a broken pediment of curved outline. The scheme is a variation of Lescot's Louvre pavilions, and thus appears to show further that its designer had either studied in France, or had borrowed ideas from the plates of Du Cerceau's book.

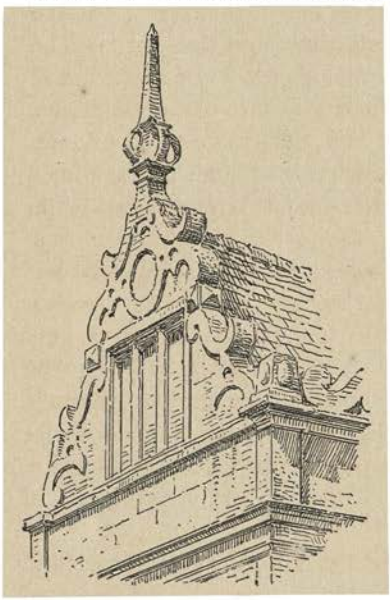


FIG. 129. — Gable of Kirby Hall.

The southwest angle, with its curved bays, in two stories and attic, is more English in character. No neo-classic elements occur here, except the entablature bands which crown the stories. The gables (Fig. 129) of fantastic outline with strap-work scrolls, are, I suppose, of Flemish, or Dutch, origin; but they became common features of the more showy Elizabethan architecture.

Longford Castle,[1] another design by John Thorpe, is triangular on plan with a round tower at each angle. Though the building has been more or less altered in some of its details, the main features tally with Thorpe's elevation, preserved in the Soane collection, and reproduced by Gotch (vol. I, p. 20). French influence is marked here in the general disposition of the principal façade, and in some of the more conspicuous details. This façade, in the relation of the central block to the angle towers, bears a striking resemblance to the east front of Chambord. The towers have nearly the same form and proportions, but the central block is longer in Longford than in Chambord. The architectural scheme of this block, though not a reproduction of that of Chambord, has enough similarity to provoke comparison. Both are divided into three stories, and both have open arcades framed with orders. But in Longford the arcades are confined to the centre of the block, and to the first two stories, while in Chambord, above the ground story, they are differently disposed, and occur in all three stories. The long block of Longford has two projecting pavilions which are connected by the arcades, while the front of Chambord is all in one plane; but in a general front view the effect is not greatly different. In the orders of his pavilions Thorpe has employed De l'Orme's pilaster of the Tuileries, and in the attics which he has set at intervals over his main cornice, other features, as the hermæ supporting the pediments of the Tuileries, are reproduced in modified form.[2]

The caprice of design shown in the Elizabethan neo-classic ornamentation assumes an astonishing variety of forms, of which it may be well to give a few further examples. A window in the entrance front of Lower Walterstone Hall has a lintel in the form of an architrave supported on short sections of pilasters carried on brackets, while over this a pediment is inserted in the wall with an interval between it and the lintel, the whole forming the semblance of an entablature beneath the pediment, with its frieze in the wall plane (Fig. 130). In the porch of Cranborne Manor-House an entablature over an arcade is

[1] Gotch, plate 33.

[2] Du Cerceau's book was published in 1576, and Longford's was begun in 1580. It is not unlikely, therefore, that Thorpe had studied the designs of Chambord and the Tuileries in the prints of this book.

FIG. 130. — Window of Walterstone Hall.

broken into ressauts resting on corbels in the shape of lions' heads projecting from the arch spandrels (Fig. 131), and over this entablature is a blind attic adorned with strap-work. The angles of the façade in which this porch occurs are furnished with buttresses in three stages with deep offsets, like those of Gothic art. The outer face of each stage is ornamented with a pair of pilasters on tall pedestals, with an entablature in ressauts, and over the topmost pair are two obelisks as finials. The pilasters are each broken in the middle by a larger block of stone after the manner of De l'Orme's columns.

The gatehouse at Tixall[1] has a plain front of three stories with a projecting bay over the portal, and angle towers. The window openings are all of the broad mullioned Elizabethan type, and the façade as a whole would be admirable if it had nothing more. But the Renaissance ideas led the designer to crown each story with an entablature, and to set a pair of classic columns on either side of the central bay, and in each tower angle. To cover these useless columns the entablature has to be broken into deep ressauts, and the three superimposed pairs carry nothing but a pedestal block above the main cornice, the several pedestal blocks being connected by a balustrade.

FIG. 131. — Cranborne Manor-House.

[1] Gotch, plate 92.

The gatehouse of Stanway[1] has a portal with a four-centred arch framed with a shallow Doric order, having a pilaster with a free-standing column in front of it on either side. The entablature has a double ressaut over each of these compound members, and a curved pediment over the entablature is likewise broken into ressauts. A rectangular tablet with an escutcheon, surmounted by a smaller pediment, breaks through the middle of the larger pediment, and acroteria are set on its sides, while a keystone in the arch carries a shallow ressaut in the entablature. The front of Westwood Park[2] is for the most part free from foreign elements, but it has a porch in the form of a Roman triumphal arch with three openings, and a Corinthian order of almost correct ancient proportions.

A remarkable illustration of the architectural taste of this time is afforded by the well-known Gate of Honour at Caius College, Cambridge. A triumphal arch scheme with an Ionic order, a Tudor arch, no openings in the lateral bays, and no attic, is surmounted with a Greek temple front of an engaged Corinthian order raised on tall pedestals connected by an engaged balustrade. This embraces in width only the central bay of the substructure, and solid abutments of concave outline are carried up over the side bays. A plain attic over the pediment of the temple forms the base for a square pyramid intersected by a tall hexagon, surmounted with a hexagonal dome. No voids, except the central opening under the Tudor arch, break the solid mass, but the wall surfaces are ornamented with disks, niches, entablatures, and small pediments in relief; and the pedestals of the temple order are carried on corbels and ressauts in the lower entablature.

Of the many English houses built at the close of the sixteenth century, few are more tasteless and pretentious than Wollaton Hall,[3] built by Sir Francis Willoughby "at great expense, it was said, for a foolish display of his wealth." An order of coupled pilasters, broken in the middle by salient blocks, adorn each story, while vacant niches in the upper stories break the narrow wall surfaces between the pilasters on either side of the large mullioned windows. The chimney-stacks are, as in Longford Castle, shaped in the semblance of pseudo-Doric columns, and the square angle pavilions have their cornices

[1] Gotch, plate 82. [2] *Ibid.*, plate 86. [3] *Ibid.*, plate 143.

adorned with false pediments of capricious outline and strap-work ornamentation, flanked by obelisks on tall pedestals. One other feature of this remarkable design is perhaps worthy of notice, namely, the portal of the north front. This portal has a low arch, and is sheltered by a porch in the form of a massive free-standing Doric order, the shafts of which are broken in the middle by a salient drum, and the middle of the entablature is supported by a heavy console which forms, at the same time, a monstrous key-stone to the arch (Fig. 132).

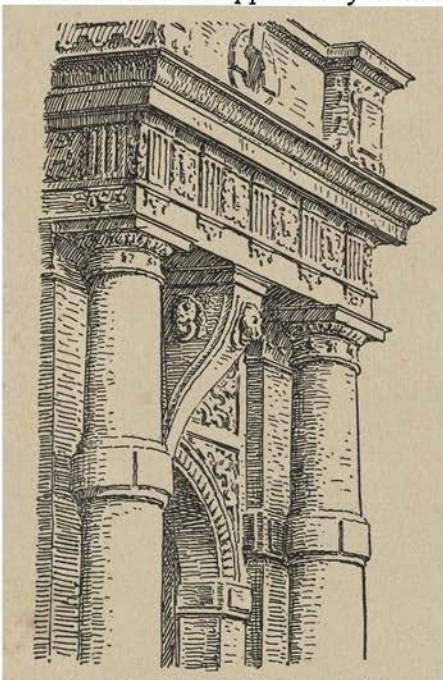


FIG. 132. — Portal of Wollaton Hall.

It is unnecessary further to multiply examples. While one great house of the period differs from another in unimportant ways, those in which ornaments are extensively applied are without exception disfigured by them. The Elizabethan architectural ornamentation is at once pretentious and grotesquely ugly. It was only in so far as they held to a straightforward provision for domestic needs, and avoided architectural pretensions, that the English people of the Elizabethan Age produced really good domestic architecture.

Toward the close of the sixteenth century many Flemish and Dutch ornamental workers had come into England, and had brought in the tasteless forms of design that had been current with them. The ungrammatical and inelegant misuse of the orders, and the meaningless barocco scrollwork, with which the Elizabethan houses were overloaded, may be largely due to them. But these modes of design were readily assimilated by the native English workmen, and approved by the aristocratic English taste. The architect, in the more modern sense, did not yet exist. The design and execution of these buildings were in

the hands of the master builders. No complete drawings were prepared in advance. Only the general scheme in rough sketches of plans and elevations was furnished, and these were freely modified, and the details developed, as the work proceeded under the direction of the master mason. It was a survival of the mediæval system, and no better system could be devised so long as the workmen were suitably trained to their craft, worked together on traditional lines, and were governed by a common understanding, common aims, and a strong feeling of artistic fellowship. But the Elizabethan workmen were not thus associated and governed. The older traditions of design had been largely lost, and the builders were attempting to use architectural forms which they did not understand. The aberrations that resulted from the efforts of these craftsmen to use the classic orders were ludicrous, as we have abundantly seen. The orders were entirely foreign to the genius and to the requirements of the English people, and were altogether out of place in English house building. Their departure from their own proper traditions and architectural habits at length weakened the building craftsmen, so that they finally lost their occupation with the rise of the modern professional architect, who first appeared in England in the person of Inigo Jones, whose work we may consider in the next chapter.

CHAPTER XIV

ARCHITECTURE OF THE RENAISSANCE IN ENGLAND

II. *Jones and Wren*

IT is only by extension of the term that the architecture of England in the seventeenth century may be properly called Renaissance. But if, in architecture, we understand by Renaissance a revival of the use of classic details, such extension is justifiable, for in this architecture the use of classic details is becoming established, and the art of Jones and Wren stands in relation to the Elizabethan architecture as the art of Vignola and Palladio does to that of the early Renaissance in Italy, and that of Lescot and De l'Orme to the early French Renaissance.

Inigo Jones and Sir Christopher Wren were the only English architects of great importance at this epoch. It was their genius that determined the character of modern English architecture, and we may therefore confine our attention to their works.

Of Jones, Horace Walpole thus speaks in his *Anecdotes of Painting:*[1] "Inigo Jones, . . . if a table of fame like that in the *Tatler* were to be framed for men of indisputable genius in every country, would save England from the disgrace of not having her representative among the arts. . . . Vitruvius drew up his grammar, Palladio showed him the practice, Rome displayed a theatre worthy of his emulation, and King Charles was ready to encourage, employ, and reward his talents." This famous architect began his artistic career in the early part of the seventeenth century. Nothing is known of his early education, but in youth he appears to have manifested an inclination for drawing, and to have acquired some skill in landscape painting.[2] He does not seem to have had any systematic training in architecture,

[1] Vol. 2, p. 260.

[2] Cunningham's *Lives of the Most Eminent British Painters, Sculptors, and Architects*, vol. 4, p. 71.

but in early life he travelled in Italy,[1] where he studied the ancient monuments and read the works of Palladio and other Italian authors. In a book entitled *Stonehenge Restored*,[2] he says: "Being naturally inclined in my younger years to study the arts of design, I passed into foreign parts to converse with the great masters thereof in Italy, where I applied myself to search out the ruins of those ancient buildings which, in despite of time itself, and violence of barbarians, are yet remaining. Having satisfied myself in these, and returning to my native country, I applied my mind more particularly to the study of architecture." For a quick-witted man with architectural aptitudes no training could be better, except that of growing up in an atmosphere of building activity, as the craftsmen of the Middle Ages did.

In his first practice Jones appears to have worked in a mixed style. The mongrel Elizabethan art was still in full vogue, and with this style, says Cunningham, "Inigo compounded, and for some time persevered in what the wits of the succeeding age nicknamed King James's Gothic." The well-known porch of St. Mary's church, Oxford, if it be by Jones, may furnish an example of this earlier style. But he soon sought to free himself from the vagaries of the Elizabethan craftsman, and strove to introduce a rigorous use of Palladian forms. He had learned the grammar of the orders as formulated by the architects of the later Renaissance, and had apparently conceived a sincere belief that the Palladian canons embodied all that was most excellent in architectural design. He saw in the Elizabethan art only its manifold infractions of the rules of order and proportion, and its grotesque distortions of classic forms. To reëstablish these rules and restore these forms appeared to him the way to regenerate English art.

First among his extant works that can be certainly identified is the well-known Banqueting Hall built in 1619, for King James I, as a part of the projected palace of Whitehall, for which he had prepared the plans on a vast scale. The first remark prompted by this design is that it is not at all English.

[1] Cunningham, *op. cit.*, p. 76.

[2] A work undertaken at the request of the king, in which Jones reaches the astonishing conclusion that in Stonehenge we have the remains of a Roman temple of the Tuscan order. Cf. Cunningham, p. 106 *et seq.*

Every form and feature of the native art is eliminated. The Elizabethan house, however overlaid with foreign elements, was English in its primary forms and expression. But here Inigo Jones swept away everything English, and substituted a Palladian scheme that is foreign to England in every particular. The low-pitched roof, the plain rectangular outline, and the narrow undivided window openings are as Italian as the orders with which the façade is overlaid. But such was the state of taste among the influential classes that these features were approved, and the design was applauded with acclamation. "It spread," says Cunningham, "the love of classic architecture far and wide, and there was soon a growing demand for works which recalled Athens to the learned, and presented something new to the admiration of the vulgar."[1] The learned had then small knowledge of Athenian architecture, and even now many learned people fail to consider that there was never in Athens anything at all like Palladian design.

The façade of the Banqueting Hall (Plate X) is in two stories on a low basement, and has a rusticated wall of smooth-faced masonry, with an engaged order in each story, and a parapet with a balustrade over the main cornice. The central part of this façade has its wall slightly advanced, and in each story the orders, Ionic and Corinthian respectively, have engaged columns against the projecting middle part, and pilasters on either side, a pair of them being set together at each end. These pilasters taper and have strong entasis, so that parts of those on the angles overreach the end walls. The entablatures are carried by the walls, and thus have to be broken into ressauts to cover the columns and pilasters. The structural function of all these superimposed columns and pilasters is therefore only that of carrying the ressauts of the parapet. The rectangular windows, of severely classic design, have pediments, alternately curved and angular, in the lower story, and flat cornices only in the story above, while a frieze below the main entablature is adorned in Roman fashion with masks and festoons.

It is surprising that such a mechanical reproduction of a foreign style should ever have called forth high praise from Englishmen. The design exhibits no invention, no creative adaptation of foreign elements to new conditions, and therefore

[1] Cunningham, *op. cit.*, p. 115.

BANQUETING HALL, WHITEHALL
London

no reason for the use of such elements. The low-pitched roof (wholly invisible from any near point of view) is unsuited to the English climate, and the parapet and balustrade are equally inappropriate. Yet of this design Walpole remarks [1] that "it stands as a model of the most pure and beautiful taste." And an earlier expression of the feeling which prevailed among the dilettanti of the time is found in the text which accompanies Kent's well-known book of Jones's designs [2] as follows: "If the reputation of this great man doth not rise in proportion to his merits in his own country, 'tis certain, in Italy, which was his school, and other Parts of Europe, he was in great esteem; in which places, as well as in England, his own works are his monument and best Panegyrick; which, together with those of Palladio, remain equal Proofs of the Superiority of those two great Masters to all others."

The whole scheme for the palace of Whitehall is fully illustrated by Kent.[3] The plan is a vast rectangle measuring 874 by 1151 feet, and comprising seven courts, of which the central one toward the park encloses a circular gallery. The long blocks are broken by rectangular pavilions, one on the axis of each of the four sides, one at each angle, and others at intervals between. It is thus French in character, rather than Italian, and suggests a derivation from De l'Orme's plan of the Tuileries. It is not worth while to examine the architectural character of the elevation fully in detail; but, in addition to the Banqueting Hall already noticed, it may be well to examine several other parts which further illustrate the art of Inigo Jones. The axial pavilions are flanked with rectangular towers in three stages, each stage adorned with an order, and surmounted with an octagonal cupola. On the Westminster front the basement has a Doric order with a modification of De l'Orme's column, in which the larger stones are square. This basement (Fig. 133) has a mezzanine marked by an entablature which is cut in the middle by the keystones of a flat arch over a window beneath. The great entablature in this case is borne by the columns, and the order has thus a structural character (though it has no struc-

[1] Cunningham, *op. cit.*, vol. 2, p. 266.

[2] *The Designs of Inigo Jones, consisting of Plans and Elevations for Publick and Private Buildings*, by William Kent, London, 1727.

[3] Plates 1 to 52 inclusive.

tural reason for being) which the orders of the Banqueting Hall do not have. The only other feature of Whitehall that need be mentioned is the façade of the circular court enclosed by the king's apartments. This is a *bizarre* design in two stages, with a so-called Persian order below and an order of caryatids above. The bearing members of these orders stand out beyond the entablatures, and thus support nothing but ressauts, while a balustrade with statues crowns the whole.

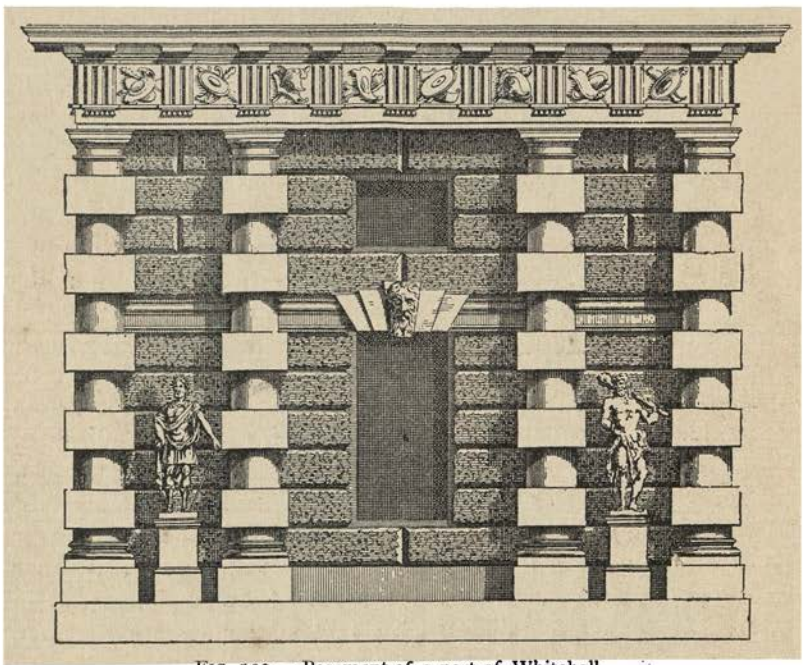


FIG. 133.—Basement of a part of Whitehall.

With all his zeal for reform by a stricter conformity to classic models, the designs of Inigo Jones were never truly classical, and they often exhibit ludicrous aberrations. He had no true conception of the principles of classic art, as no architects of the Renaissance ever had. The Palladian architecture, which he mainly strove to follow, was itself, as we have seen, far from true to classic design. Some of these aberrations are strikingly shown in the west front which he built to the nave of old St. Paul's cathedral. In attempting to apply classic details to such a building he was obliged to depart widely from

classic principles. His scheme, as shown in Kent's print (Fig. 134) is as incongruous a mixture as was ever produced by the Elizabethan craftsmen. This front, in its main outline, has to follow the form of the Mediæval structure, with its high nave and low aisles. To this mediæval form the architect has affixed a variety of features derived from Roman, Renaissance, and

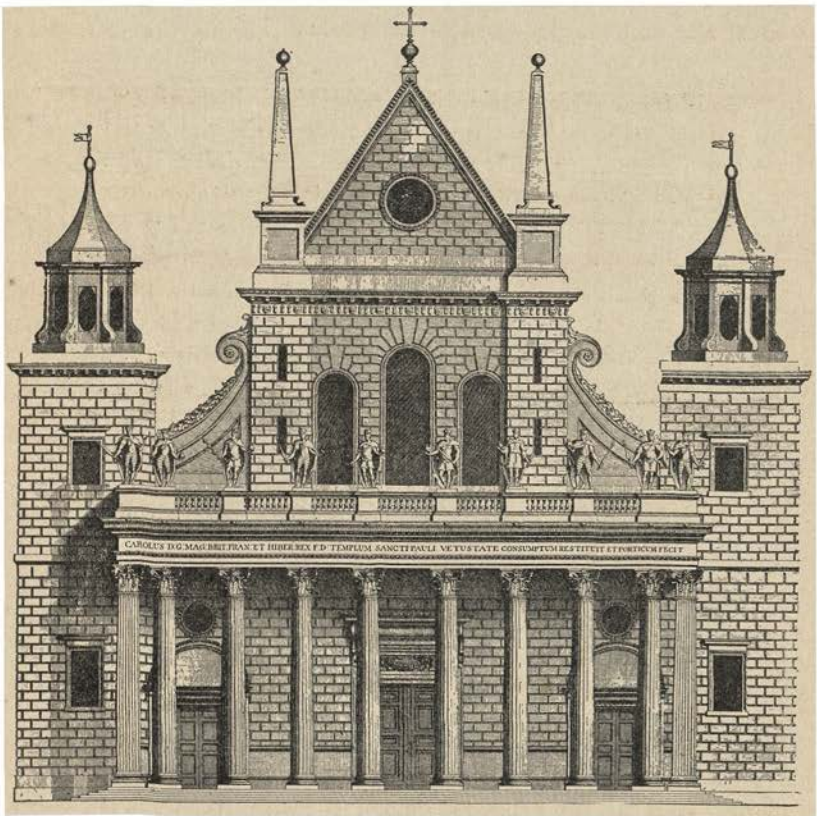


FIG. 134. — Front of old St. Paul's by Inigo Jones.

even Egyptian sources. He has crowned the wall with a pseudo-classic cornice surmounted by a steep gable, he has set obelisks on Roman pedestals over the buttresses, affixed reversed consoles to the clerestory walls, and built a Corinthian portico with a balustrade upon its entablature, and completed the scheme with flanking towers crowned with lanterns. It is a thoroughly barbarous composition, which even Walpole complains of as follows: "In

the restoration of that cathedral he made two capital faults. He first renewed the sides with very bad Gothic, and then added a Roman portico, magnificent and beautiful indeed, but which has no affinity with the ancient parts that remained, and made his own Gothic appear ten times heavier." [1]

The art of Inigo Jones has been thoughtlessly lauded in more recent times. "His special strength," says Mr. Bloomfield, his latest panegyrist, "lay in his thorough mastery of proportion, his contempt for mere prettiness, and the rare distinction of his style. His own theory of architecture was that, in his own words, "it should be solid, proportional according to the rules, masculine and unaffected." [2] Was Inigo Jones a master of proportion? Does he not in this declaration betray a fundamental misconception of the true meaning of proportion? Is any genuine work of art "proportional according to the rules," *i.e.* the mechanical formulas of Vitruvius or Palladio on which he professed to base his practice? And did Jones ever carry out in practice his avowed theory that architecture should be unaffected? Can an art be unaffected which is so frankly copied from a foreign style? I have characterized the spirit of much of the architecture of the Renaissance as theatrical; that of Inigo Jones is preëminently so, and it is significant that he was extensively employed, in his early career, in designing architectural backgrounds for the stage.

The artistic career of Sir Christopher Wren, the most justly famous architect of the belated English Renaissance, began after the Civil War. Inigo Jones had prepared the way for him, and a body of aristocratic dilettanti, ardently devoted to the neo-classic propaganda, had arisen. The artistic notions of these people are instructively set forth in the following passage from *Parentalia:* [3] "Towards the end of King James I's Reign, and in the Beginning of his Son's, Taste in Architecture made a bold step from Italy to England at once, and scarce staid a moment to visit France by the way. From the most profound Ignorance in Architecture, the most consummate Night

[1] *Op. cit.*, p. 265.

[2] *A History of Renaissance Architecture in England*, by Reginald Bloomfield, London, 1897, vol. I, p. 122.

[3] *Parentalia, or Memoir of the Family of the Wrens*, by Christopher Wren, London, 1750, pp. 269–270.

of Knowledge, Inigo Jones started up, a Prodigy of Art, and vied even with his Master Palladio himself. From so glorious an Out-set, there was not any Excellency that we might not have hoped to obtain; Britain had a reasonable Prospect to rival Italy, and foil every Nation in Europe beside. But in the midst of these sanguine Expectations, the fatal Civil War commenced, and all the Arts and Sciences were immediately laid aside."

Before turning his attention to architecture Wren had been a distinguished scholar at Oxford, where he was appointed Professor of Astronomy in the year 1657. It was not until mature manhood that he began the practice of architecture, and thus, like so many others who have achieved distinction in this art, he never had a special and systematic preliminary training for it. His father, Dr. Christopher Wren, Dean of Windsor, is said to have been skilled in all branches of mathematics and in architecture,[1] and this, together with his own native aptitudes, appears to have made it easy for him, by observation and practice, to acquire the necessary preparation for such work as he was to do. His opportunities for study of the architectural monuments of the Continent were small. He never visited Italy, but he spent some months in Paris, and while there wrote, in a letter to a friend, as follows: "I have busied myself surveying the most esteem'd Fabricks of Paris, and the Country round; the Louvre for a while was my daily Object, where no less than a thousand Hands are constantly employ'd in the Works; some in laying mighty foundations, some in raising the stories, columns, entablements, &c., with vast stones, by great and useful Engines; others in Carving, Inlaying of Marbles, Plastering, Painting, Gilding, &c., which altogether make a school of Architecture, the best probably, at this Day in Europe." The Italian architect Bernini was working on the Louvre at the time, and in the same letter Wren writes: "Mons. Abbé Charles introduc'd me to the acquaintance of Bernini, who shew'd me his Designs of the Louvre, and of the King's Statue. . . . Bernini's Design of the Louvre I would have given my skin for, but the reserv'd Italian gave me but a few Minutes View; it was five little Designs on paper, for which he hath receiv'd as many thousand Pistoles; I had only

[1] *Parentalia*, p. 142.

time to copy it in my Fancy and Memory. I shall be able by Discourse, and Crayon, to give you a tolerable Account of it."[1]

He appears to have made the most of his time while in France, but he naturally confined his attention to the modern works of that country, which alone were then thought worthy of notice. The great châteaux of Fontainebleau, St. Germains, Chantilly, and many others, he speaks of in the same letter as having "surveyed that I might not lose the impressions of them."

Wren's first architectural work appears to have been the Sheldonian Theatre in Oxford, which is thus referred to in *Parentalia:* "This Theatre, a work of admirable Contrivance and Magnificence, was the first publick Performance of the Surveyor,[2] in Architecture; which, however, had been executed in a greater and better style, with a view to the ancient Roman Grandeur discernable in the Theatre of Marcellus at Rome, but that he was obliged to put a Stop to the bolder strokes of his Pencil, and confine the Expense within the Limits of a private Purse."[3] But his great opportunity occurred after the fire of London, when he was commissioned to prepare plans for the rebuilding of the city, including the cathedral of St. Paul and all the city churches. Before the great fire he had been ordered to submit designs for the restoration of the old cathedral of St. Paul, the grand old Norman structure, with additions in the early English style, which, notwithstanding the repairs and additions of Inigo Jones, was still thought to be in a dangerous condition. Wren made a careful survey, and worked out a plan, elevation, and section of the old structure, and expressed surprise at what he considered the negligence of the old builders. "They valued not exactness: some Inter-columns were one inch and a half too large, others as much, or more, too little. Nor were they true in their levels."[4] He thought that the whole fabric was alarmingly insecure, except the portico built by Jones, which, he said, "being an entire and excellent piece, gave great reputation to the work in the first repairs."[5]

He prepared plans for a thorough restoration, but these were

[1] *Parentalia*, pp. 261–262.

[2] Wren had been appointed surveyor-general and principal architect of the city of London after the great fire.

[3] *Parentalia*, p. 335. [4] *Ibid.*, p. 273. [5] *Ibid.*, p. 277.

not approved, and he set off for France. Then came the great fire and put an end to all thought of repairs on his part, though the commissioners appear still to have clung to the idea of restoration until they were satisfied, by fruitless effort to utilize what remained of the old work, that such a course was impracticable.[1]

An entirely new structure was now decided on, and Wren was directed to "contrive a Fabrick of moderate Bulk, but of good Proportions; a convenient Quire, with a Vestibule and Porticoes, and a Dome conspicuous above the Houses. A long Body with aisles was thought impertinent, our Religion not using Processions."[2]

It is difficult from the statements in *Parentalia* clearly to identify Wren's different drawings which have been preserved, and to reconcile either the statements or the drawings with what is said by more recent writers, who do not always agree among themselves. The drawings embody widely different schemes which were the results of so many attempts to meet the wishes of the king and court on the one hand, and those of the citizens on the other. Of these there are two sets which may be considered as the principal ones.

The first of these has a novel plan based on that of the Greek cross, but having the reëntrant external angles filled out to segmental curves struck from the corners of a square enclosing the whole. A great dome on a circular drum supported by eight piers rises over the crossing, a small dome on pendentives covers each of the spaces between the great circle and the curved enclosing walls; while the northern, southern, and western arms of the cross have each a square groined vault. The form of the vaulting over the eastern arm is not indicated on the plan, but the choir enclosure is shown in the form of a circle cut out on the east to open into the sanctuary, and on the west to communicate with the nave. The dome (Fig. 135) is in two shells of masonry, the inner one being hemispherical with a circular opening in its crown, and the outer one a pointed oval supporting a lantern. The drum is thick, and although the vault springs from very near the top, a strong continuous abutment in the form of a solid ring of masonry, with concave outline, is built up against it. The

[1] *Parentalia*, p. 278. [2] *Ibid.*, p. 281.

dome is kept solid up to the haunch of the inner shell, so that this inner shell is abundantly secured, while the outline of the outer shell, from the point where it clears the solid mass below, has a form that would exert a minimum of thrust, though it would hardly be secure without a binding chain. It is noticeable that the inner face of the drum is not vertical, but inclined

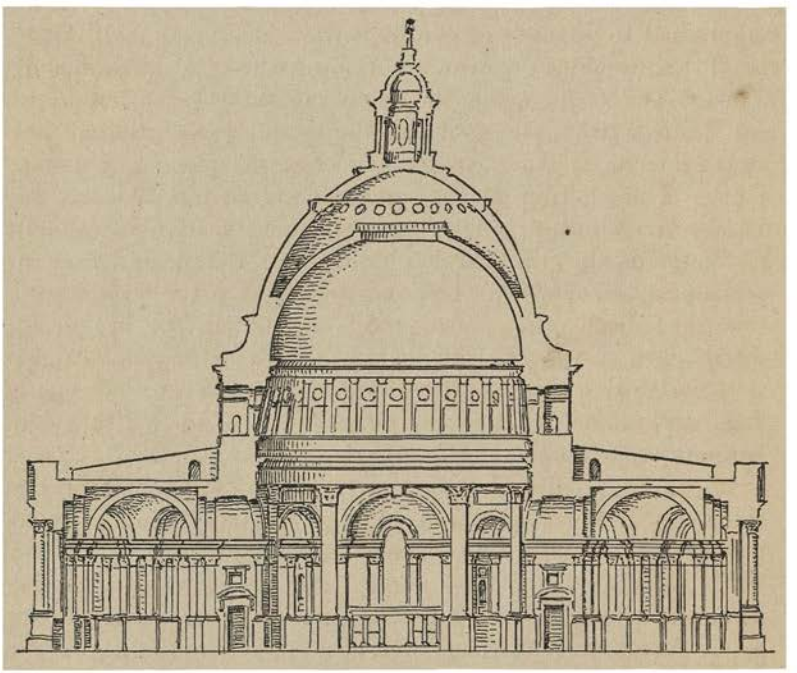


FIG. 135. — Section of Wren's rejected scheme for St. Paul's.

inward in the form of a truncated cone, which considerably strengthens it against any tendency to yield to the force of thrust in the dome.

The scheme was clearly based on the model of St. Peter's in Rome, to which frequent reference is made in *Parentalia* as having been in the mind of the architect as he developed his idea. The dome partakes of the character of Bramante's design on the one hand, and of that of Michael Angelo, as finally constructed, on the other. The likeness to Bramante's scheme (Fig. 23, p. 48) is in the form of the inner shell, and its adjustment to the supporting drum. The likeness as to adjustment is

not, indeed, very close; for Wren has raised the springing so that it is almost at the top of the drum, but he has fortified it with a continuous abutment which, though of different outline, has substantially the same structural effect. The likeness to St. Peter's is further shown in the encircling order of the inner face of the drum, which occurs in both Bramante's scheme and in that of Michael Angelo. There can be little doubt that Wren had studied Bramante's design in Serlio's book, and had appreciated its structural merits. But he wished, in emulation of Michael Angelo, to make his dome externally more imposing, and he therefore raised its springing level as we see, and adopted from Michael Angelo's scheme the idea of a double dome. The external outline from the top of the drum to the haunch of the vault is too nearly the same as the corresponding part of Michael Angelo's design to be considered as an accidental coincidence. The structural difference between the two is indeed great, since the concave portion in Wren's design is a continuous ring, while in that of Michael Angelo it is an isolated and insignificant abutment. Wren's scheme is thus superior in point of constructive merit, since it provides continuous resistance to continuous thrust. It will be seen that the two shells of Wren's projected dome correspond to the inner and outer shells of Michael Angelo's model (Fig. 26, p. 54), and thus in reproducing the main idea of this model Wren merely omitted the middle shell. He thus gave a wider divergence to the two vaults as they rise than occurs in the actual dome of St. Peter's. He also omitted the well which in St. Peter's connects the two shells at the crown.

A single order of pilasters adorns both the interior and the exterior of the church itself, the one on the outside being raised on a high basement and crowned with a plain attic; and a portico in the form of a temple front, with its order raised on high pedestals, gives emphasis to the west façade.

This design appears to have been rejected, to Wren's great chagrin, as we learn from the following passage in *Parentalia:* "The surveyor in private conversation, always seem'd to set a higher value on this design, than any he had made before or since; as what was labour'd with more study and success; and, (had he not been over-rul'd by those, whom it was his duty to obey), what he would have put in execution with more Cheerful-

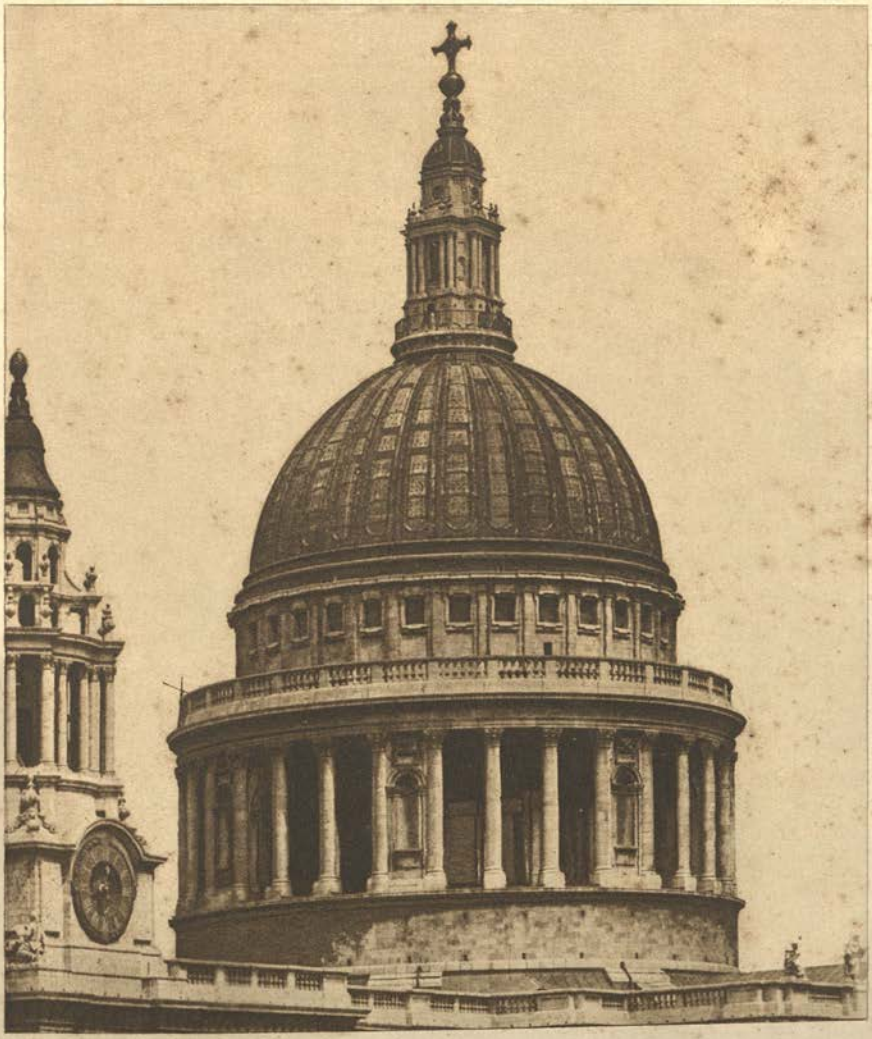
ness, and Satisfaction to himself. . . . But the Chapter, and some others of the Clergy thought the Model not enough of a Cathedral-fashion; to instance particularly, in that, the Quire was design'd circular, &c. . . . The Surveyor then turn'd his Thoughts to a Cathedral-form, (as they call'd it) but so rectified, as to reconcile, as near as possible, the Gothick to a better Manner of Architecture; with a Cupola, and above that, instead of a Lantern, a lofty Spire, and large Porticoes."

I think that had the first design been accepted Wren would not have carried it out without material modifications. For he was too good an engineer not to have seen that the form and adjustment of the dome were seriously defective from a structural point of view. However this may be, the dome which he actually built is, as we shall see, fundamentally different in character (though it is not very different in either internal or external shape), and it is different in a way that no outside influences could have compelled.

The most noticeable feature of the second design is that part which rises over the crossing, and consists of a vast frustum of a dome supporting a tall buttressed drum, which in turn is surmounted by a smaller dome of oval outline, from the crown of which rises a telescopic spire of six stages with a strongly marked cornice to each. It was in this design that he is said to have sought to "reconcile the Gothic to a better Manner." What he meant by this I do not know. Wren can hardly have supposed that he was effecting such a reconciliation by this remarkable combination of dome and spire. But in the actual cathedral of St. Paul we shall find some features that may, in part, explain his meaning.

It is noticeable that the west façade of this design is a close copy, with modifications of proportions and minor details, of the façade by Inigo Jones (Fig. 134, p. 231), which the fire had weakened or destroyed, and which Wren had much admired. This design was approved, and the king's warrant for its execution was issued May 1st, 1675. But it is said that "the king was pleased to allow him the liberty in the prosecution of his work, to make some variations, rather ornamental than essential, as from time to time he should see proper."[1] The actual building shows how largely Wren availed himself of this liberty.

[1] *Parentalia*, p. 283.



DOME OF ST. PAUL'S
London

The cathedral of St. Paul as it now stands was never embodied in any set of drawings. Starting with a few rough sketches the scheme was developed as the work proceeded, the master being always present to direct the work. Wren was at the start what would now be called an amateur, but by degrees he learned his art in the best possible way, not in the office or drawing-room, but on the scaffold in close contact with the works. It was thus that Brunelleschi had worked on the dome of Florence, and Michael Angelo on St. Peter's.

The plan of the existing St. Paul's has no beauty comparable to that of St. Peter's (Fig. 31, p. 67). It has a long nave with a short transept near the middle, a semicircular apse, and two western towers. Both nave and transept have side aisles, and in the angles formed by the towers, which project beyond the aisles in the manner that is common in the mediæval churches of England, are a consistory court and a morning chapel, while in the angles of the crossing three vestries and a stair-turret are set. Thus the Greek cross plan which Wren appears to have first intended, "a long body with aisles" having been "thought impertinent, our religion not using processions," was widely departed from in conformity with the popular feeling that the first plan "deviated too much from the old Gothick form of Cathedral Churches, which they (the people) had been used to see and admire in this country."

In the elevation a great dome, in outline not very unlike the one first intended, rises over the crossing; the nave and aisles are vaulted with small domes on pendentives of peculiar form, and the piers of the interior are faced with a great Corinthian order of pilasters. That Wren worked with constant reference to St. Peter's as the main source of his inspiration, is clearly enough manifested in the general scheme, though there are many points of difference between the two monuments, apart from the great difference of scale. Other sources of influence are, however, also apparent.

The most interesting feature of St. Paul's cathedral is, of course, the great dome (Plate XI), which is one of the most remarkable of the series of modern domes that began with the dome of Brunelleschi. In general external form it recalls Bramante's diminutive circular temple of San Pietro in Montorio, and it is not unlikely that Wren derived the idea from the

woodcut of that design in Serlio's book, or in that of Palladio. Wren has, of course, altered and amplified the scheme in adaptation to his vast scale and lofty proportions, but the general composition of the two is substantially the same, though the internal structure is entirely different. The leading features of the exterior, the encircling order crowned with the balustrade,

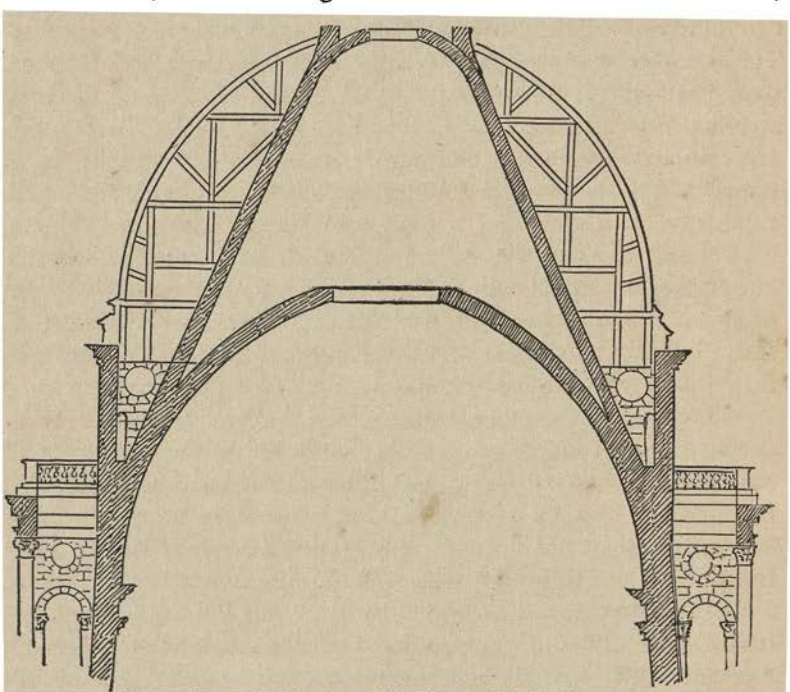


FIG. 136. — Section of the dome of St. Paul's.

and the dome rising over it surmounted by the lantern, are those of Bramante's design.

The structural system of this dome (Fig. 136) is peculiar. From eight piers arches and pendentives are turned, forming the circular bed from which the drum rises to a great height, and from a level far below the top of this drum a dome of masonry, of slightly oval form is sprung. The drum is double, and the inner wall, which carries the dome, inclines inward, as in the rejected design, up to the springing level, and above this it rises vertically against the haunch of the dome. From the haunch a hollow cone of masonry is

carried up far above the crown of the dome, where it is cut off and covered with a small segmental dome surmounted by a tall lantern of stone. The system is devised with a view to stability. The cone shape of the inner drum gives it resistance to the dome thrusts, and these thrusts are further fortified by a solid filling of masonry between the smaller cone above and the vault reaching more than halfway from the springing to the crown. The outer drum is a solid wall up to a level but little higher than the apex of the timber roof of the nave, where it forms a stylobate for the encircling Corinthian order. But the two drums are connected by heavy abutments across the interval between them, one behind each column of the encircling order, with a heavier buttress filling every fourth intercolumniation (Plate XI). The inner drum rises in diminished thickness above the entablature of the outer one in the form of an attic with an order of pilasters and square openings between. From this attic rises a false dome of timber, surrounding and concealing the great cone which is the real support of the lantern.

This remarkable scheme embodies the last notable attempt to solve the great dome problem with which the architects of the Renaissance had struggled from the time of Brunelleschi. But the problem is incapable of a satisfactory solution. It is impossible to make a large unbuttressed dome stand securely except by the extraneous means of binding chains. Wren has not attempted to do such a thing. He was too good an engineer to follow in the footsteps of Brunelleschi and Michael Angelo. His dome is well buttressed, but it is therefore necessarily hidden from view. To raise another dome of masonry from the cornice of the drum for external effect, and to crown such a dome with a stone lantern fifty feet high, he saw to be impossible with safety. A semblance of such a dome was, however, necessary to his scheme. He had been charged to make a dome "conspicuous above the houses," and he therefore surrounded the cone, the true support of the lantern, with a wooden counterfeit of a dome upon which he makes the beholder believe that the lantern rests. The system is thus a monstrous architectural deceit. We have criticised Michael Angelo for springing a great dome from the top of a drum, but he cannot be reproached for deception. His dome is a real dome of masonry, and does carry the lantern as it appears to,

though, as we have seen, insecurely, except for so long as the binding chains can be made to save it from collapse. Wren would not build a dome in this inherently weak manner. He preferred to design his masonry construction on sound principles, which would not allow an external dome, and to enclose this within the wooden counterfeit. And it may here be remarked that most modern domes, modelled after St. Peter's and St. Paul's, are wooden constructions and carry lanterns of wood. They are thus entirely safe, but they have not the monumental character of great architectural works.

FIG. 137. — Vaulting of St. Paul's.

In general external effect the dome of St. Paul's has much merit, if it does not justify the extravagant remark of Mr. Loftie that it is the "noblest dome in Christendom."[1]

The proportions of the interior of the church (Plate XII) are admirable, and give a better effect of scale than the larger scheme of St. Peter's. But the details exhibit more of those aberrations that are inherent in the architecture of the Renaissance. The vaulting of the nave (Fig. 137) is in oblong compartments with their long axes running transversely, and the small domes, which are low spherical segments instead of hemispheres, therefore leave considerable

[1] W. J. Loftie, *Inigo Jones and Sir Christopher Wren*, London, Macmillan & Co., 1893, p. 196.

INTERIOR OF ST. PAUL'S
London

intervals at each end of each compartment, over which segments of barrel vaulting, of a form generated by the elliptical lunettes of the clerestory, are turned. The pendentives thus have a peculiar shape, and are segments of a hemisphere cut by four vertical planes coinciding with the sides of the vault compartment, by a horizontal plane at the base of the dome, and by the interpenetrating barrel vaults. The compartments are separated by transverse ribs, and these, together with the groins formed by the meeting of the pendentives and the interpenetrating lunette vaults, give a somewhat mediæval effect to the vaulting conoid. In other words the lines of the groins and the lunette arches form a combination not unlike that of Gothic vaulting. This may have been one of the points in which Wren fancied that he could "reconcile the Gothic to a better manner."

In the great order Wren has departed from the scheme of St. Peter's in giving only one pilaster to each pier of the nave, though in the larger piers under the great dome he has set them in pairs. Under the archivolts of the great arcade and under the aisle vaulting the smaller pilasters are coupled, while in St. Peter's they are single. With the details of these orders the architect took great liberties in utter disregard of the canons of Vitruvius and the neo-classic authorities. The crowns of the great arches reach high above the capitals of the pilasters, so that a complete entablature cannot pass over them. It would not, of course, do to allow the archivolts to cut into an entablature, and Wren has therefore omitted the architrave and frieze in the intervals of the order, and has included them only in a ressaut over each pilaster, the cornice alone being carried over the arch. To give the vaulting its admirable elevation without unduly magnifying the great order, as Michael Angelo did in St. Peter's, an attic is interposed, but to spring a vault from an attic wall is an architectural barbarism; though it is perhaps no greater one than to spring it from an entablature, as the architects of the Renaissance had done from Brunelleschi down. In the small order of the aisles the entablature is simplified, and has only an architrave and cornice; while a member, like a diminutive attic, in retreat of the cornice, is interposed at the impost. It looks as if this had been done in order to raise the springing of the arches so that no part of them would be cut

off from view by the salience of the cornice; and it was apparently in part for the same reason that the attic was interposed in the nave. The motive is commendable. The effect of vaulting rising directly from a salient cornice Wren may justly have felt to be a bad one, but to avoid it while using classic details necessitates these strange inconsistencies.

Among numerous other aberrations of this pseudo-classic scheme is the treatment of the segmental archivolts of the small half domes that open out of the oblique sides of the great octagon at the crossing. The orders of the crossing piers have complete entablatures (Fig. 138), and the archivolts in question are in two parts answering to the frieze and cornice of these entablatures, which they intersect in the awkward manner shown in the figure. To have mitred the cornice of the archivolt to that of the order would have left the pilaster beneath with an incomplete entablature, and the architect preferred to run the cornice through the archivolt in this unsightly way. Such were some of the further makeshifts to which the designers of the Renaissance had to resort in their efforts to apply the classic orders to uses for which they were not adapted. But all such aberrations in the use of classic elements are superficial and open. A more radical violation of architectural veracity is found in the manner in which the buttress system is concealed. The thrusts of the nave vaulting are met by a series of flying buttresses carried over the aisle roof in Gothic fashion (Fig. 139). But it would not do to have flying buttresses appear in an ostensibly classic system, and Wren accordingly hid them from sight by a screen wall made to look like an upper story in the general view of the exterior. It is not until one mounts to the terrace of

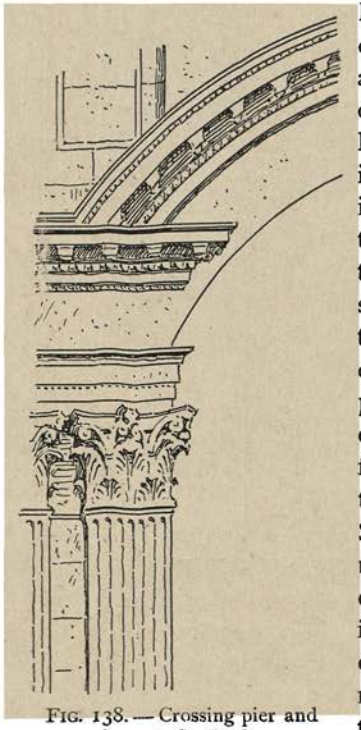


FIG. 138. — Crossing pier and impost, St. Paul's.

the drum, and looking down finds the space between the clerestory and outer wall open to the sky, that he discovers the buttresses there, and realizes the deceitful character of the architectural scheme. Perhaps this illustrates another point in which Wren "sought to reconcile the Gothic to a better manner." A similar treatment occurs in that part of the nave of St. Peter's which was built by Maderno. Michael Angelo's great external order had obliged him, as we saw (p. 68), to carry up the aisle wall to the height of the clerestory, but he filled up the space over the aisle with his small embedded dome (Fig. 32, p. 69). In Maderno's part the dome is omitted, and the space over the aisle vaulting is left open to the sky as in St. Paul's. But the buttresses of St. Peter's are solid cross walls with no suggestion of Gothic form. In the vaulting of the apse Wren has followed the quasi-mediæval form adopted by Michael Angelo in the apse of St. Peter's, dividing it into three shallow cells on converging ribs rising from the stumpy pilasters of the attic.

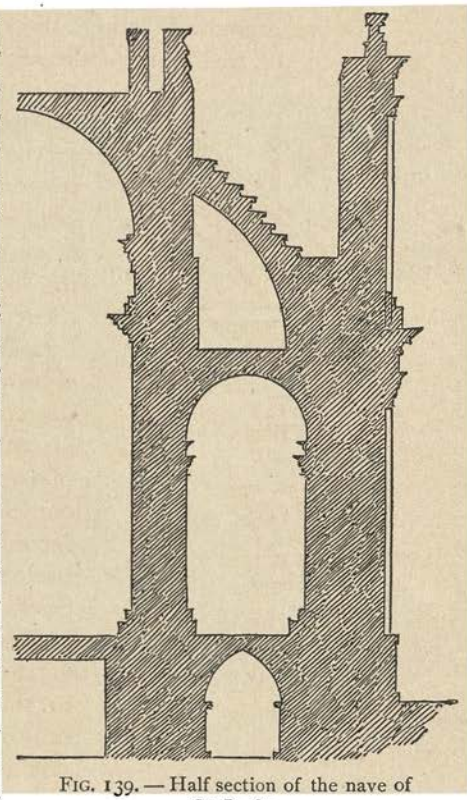


FIG. 139. — Half section of the nave of St. Paul's.

Of the architectural treatment of the exterior as a whole little need be said further than that it has no relation to the real form of the building. The masking of the buttress system by the false wall, and the application of orders without any structural use or expression in harmony with the real structure, are entirely in keeping with the spirit the Renaissance.

Wren's other churches exhibit a medley of elements from spurious Gothic to pseudo-classic in manifold irrational combi-

nations, such as can be found in the works of few other architects. These churches with their vaultings of wood and plaster — whether in the form of domes on pendentives, sprung from the entablatures of classic orders, as at St. Stephen's, Walbrook, or with Welsh vaulting on simulated cross ribs of plaster, as at St. Bride's, Fleet Street, or with barrel vaulting on an attic, as at St. Peter's, Cornhill, — it would be superfluous, as well as tiresome, to examine in detail. Nor is it worth while to analyze the spires of these churches. Spires made up of superimposed stories with classic entablatures in telescopic adjustment, like St. Bride's, or temples of Vesta crowned with flying buttresses holding up neo-classic tabernacles surmounted by obelisks, like St. Mary-le-Bow, are hybrid compositions of utterly barbaric character, notwithstanding the excellent portions for which they have been justly admired.

CHAPTER XV

CONCLUSION

I THINK it must be clear, in the light of the foregoing considerations, that the architecture of the Renaissance is an art without consistent principles. We have seen that it assumed a great variety of phases at different times and in different localities; but that it was never either really classic or structurally truthful. While professing to aim at restoring the "good ancient manner," the neo-classic designers rarely conformed to any ancient standards save, at most, in some details of their compositions. They designed for the most part, as we have seen, on a basis of mediæval forms, and overlaid their structures with a facing of details derived, indeed, from classic sources, but altered, mixed, and misapplied in all manner of unclassic ways. Of true classic art, *i.e.* Greek art of the best time of Greek culture, they had, as before remarked (p. 4), no knowledge. By the "good ancient manner" they meant the imperial Roman manner. But even this they did not faithfully follow. The wide departure from ancient modes of design so constantly manifested in the neo-classic architecture has not escaped notice by modern writers, who are wont to speak of it as showing that the revivalists were not servile copyists, but inventive designers adapting the ancient elements to new conditions. But there is no justification for this view. As to essential forms of building there were no new conditions to be met. In seeking to change architecture superficially by an application of classic details the neo-classicists erred. They ought to have seen that classic details do not lend themselves to new uses. Their very perfection for classic use unfits them for any other. To distort and misadjust them, as the architects of the Renaissance did, is not to adapt them. There was no true adaptation of classic elements in Renaissance design. Such adaptation involves creative modifications which so transform original elements

that to a superficial view they are not recognizable in the resulting forms. The mediæval architects, through a long series of logical changes, growing out of their remarkable structural evolution, magnificently transformed the classic orders in a creative way. This the neo-classicists failed to perceive, and because the mediæval details and adjustments did not conform with those of Roman antiquity, they felt justified in calling them barbaric, while it was they themselves who were guilty of architectural barbarism.

The architects of the Renaissance were strangely inconsistent. While in practice constantly violating the principles of classic design, they were in theory ardently advocating these principles; and finding strict canons of proportion laid down in the writings of Vitruvius, they attached, as theorists, great importance to such canons. Thus arose the elaborate systems of rules for the orders embodied in the writings of Vignola, Palladio, and many others.

The influence of these short-sighted and mechanical Italian rules has been great in modern times. The formidable body of architectural dogma, contained in the literature of the Renaissance on this subject, has been so widely accepted as authoritative that modern art has been largely shaped by it. The so-called Palladian style of the seventeenth century was derived mainly from the Italian books, and the more recent teaching has been so implicitly based on the writings of Vignola and Palladio that few architects of academic training have thought of questioning the belief that the formulas of these writers constitute the only true basis of correct design. Yet the fact that these rules are arbitrary, and not in accord with the true principles of ancient art, has occasionally been recognized. Thus in a book of the eighteenth century, devoted in the main to the inculcation of the Palladian doctrines,[1] the following remarks occur: "As it was from the works of the antient architects that the several orders were deduced, those who had studied and found their different characters then became desirous of establishing from the same source their proportions. . . . Perceiving consummate beauty in what they saw, they sought to build upon that perfection certain fixed and invariable rules, by the observing of which others might be sure of attaining the

[1] *A Complete Body of Architecture*, by Isaac Ware, Esq., London, 1768.

same excellence. . . . But when they came to examine more of those works, they found the antients had not confined themselves to any such laws; and therefore that it was impossible to build such rules upon their works. . . . The young student is confused by reading a variety of authors on the subject. Among a number of the best of these each delivers what he esteems to be the most true and perfect proportion, but in each this differs. All have founded their maxims upon something in the antique, but, some having taken in the same order one piece, and some another, these proportions vary extremely; for the antients so varied in their works. Palladio is understood to be the best and greatest of these authors, we shall therefore deliver his as the general and received proportion in each order; but upon a general review of the several remains in which that order is preserved, we shall add what is the mean or middle proportion of the several parts, calculating from them all. The modern architects too strictly and scrupulously follow these antients; they did not so closely or servilely copy one another."[1] Such recognition of the difference between the theorists' rules of the orders and the ancient orders themselves is rare in the modern literature of architecture. But the remedy proposed to relieve the student from the confusion arising from the perusal of different authors each of whom "delivers what he esteems to be the most true and perfect proportion" is of little efficacy in practice; for the mean or middle proportion would still impose a fixed rule, and the true artist does not work by rules of any sort. The proportions of a genuine work of art are determined by a sense of proportion that is governed by laws too fine to be formulated, and which no rules can reach. It is his natural sense of proportion, developed by observation and exercise, that more than anything else makes an artist. Prescription may serve in mechanical processes, but not in the production of works of art. We may get Palladian formalism by rules, but no architecture of vital character. A system of proportions that may be good in one case cannot be good in any other, and therefore it is that "the antients" so varied in their works. That rules are useless to an artist the Italian writer Baldinucci, in his book on the proportions of the human figure,[2] has well remarked. He says

[1] *Op. cit.*, p. 131.

[2] *Lettera di Filippo Baldinucci intorno al modo di dar Proporzione alle Figure in Pittura e Scultura*, Leghorn, first published in 1802.

on this point: "It is true that all these proportions, whether in painting or in sculpture, must be subject to the correction of the eye, so that proportions ought to be adopted always with its approval, notwithstanding all fixed rules, seeing that this has been the custom of all the best artists, confirmed by the memorable saying of the great Buonarroti that it is necessary for the master to have the compass in his eye." [1]

In the light of what we have seen I think it must appear that the claims which have been advanced for the architecture of the Renaissance as the only architecture of correct principles since that of classic antiquity, and as an architecture in comparison with which the Gothic art of the Middle Ages should be considered as the barbarous product of an unenlightened age, are without justification. The mistaken notions of the Italian writers of the fifteenth and sixteenth centuries (labouring under strange misapprehension of the principles of classic art on the one hand, and ignorance of the true Gothic on the other) have been too much inculcated in our own time; and the belief that classic art offers suitable models for modern uses, and that the architecture of the Renaissance embodies classic principles, has been accepted with too little examination of its grounds. A few of the most competent modern authors, while in the main disposed, by force of custom, to take a favourable view of the architecture of the Renaissance, have occasionally shown a juster sense of its real character. Thus the recent Italian writer Melani says: [2] "We always admire the beautiful productions of the art of the Renaissance, because we are accustomed to value the good wherever it is found; but when we think of the absurdity of this art, and still worse, of the consequences to which it has given rise, we cannot but deplore so much ill-directed energy."

[1] *Op. cit.*, p. 10. [2] *Architettura Italiana*, Milan, 1887, vol. 2, p. 140.

APPENDIX

CONDITION OF THE DOME OF ST. PETER'S

The mathematicians, after describing the dome and its supports, make the following statement of the condition in which they found it:[1]—

1. La base esteriore A del tamburo si vede piena di spaccature, molte delle quali corrono unite in sù per tutto il tamburo medesimo, e per tutto l' attico, fino a nascondersi in *nd* sotto i piombi non ancora scoperti. Da dette spaccature si diramano continui peli, che infrangono una quantità grandissima di travertini.

2. Esse spaccature al fondo son piccolissime, e in sù van sempre crescendo. Piegano dagli arconi in giù verso i piloni.

3. Nel Corridore CB, che gira dentro tutta la base si vedono sul muro esteriore BE molte aperture, che parimente venendo in giù piegano verso i piloni.

4. Nello stesso muro esteriore pure dentro il corridore si vedono raddoppiate aperture orizontali verso il fondo B, che nell' alzarsi il pavimento sopra gli arconi, si seppelliscono sotto al medesimo, vedendosi ivi più che altrove lo stesso pavimento separato dal muro esteriore; qual disunione è generale per tutto il corridore.

5. Dette aperture orizontali passano tutta la grossezza BA del muro esteriore della base, come si vede nelle porte, che metton fuora, rialzandosi tutto il muro dalla parte interiore verso B, e rimanendo l' appoggio solamente verso A; anzi verso B tra una spaccatura orizontale e l' altra in qualche luogo si levano colle mani senza sforzo considerabile i mattoni non più premuti.

6. Delle spaccature verticali se ne vede una sola nel muro interiore C.

7. La volta E del medesimo corridore è tutta spaccata in mezzo con una generale apertura, che gira attorno da per tutto.

8. Essa apertura passa tutta la grossezza EF della volta, vedendosi generalmente nel mattonato F sotto gli archetti de' contraforti, e per tutto attorno il ripiano, per cui si gira il tamburo; e perche vi pioveva giù nel corridore, detto mattonato fu rassettato non è un' anno.

9. Nel luogo di tal rassetto si vedono nuovi distacchi de' mattoni rimessi; anzi in qualche sito si vedono rotti i mattoni nuovi sopra l' apertura antica, e in qualche luogo di nuovo piove giù nel corridore.

[1] The letters in this description refer to those of the illustration (Fig. 30) in the text.

10. I sedici contraforti FG si vadon rotti con moltissime aperture, che nel salire piegano in dentro; le medesime rompono per mezzo gran numero di travertini di essi contraforti e quelli del cornicione *m*.

11. Sopra l' archetto F sono assai più tenui, e nell' andare in sù crescono notabilmente.

12. Molte di queste aperture, si vede, che sono state stuccate, essendosi poi riaperte le stuccature, e dilatate, e molte altre vi sono, dove non vi è vestigio di stuccatura.

13. In due archetti verso la cima de' muri dritti F, che li sostengono, si vede la parte superiore venuta in fuora notabilmente, e in un di essi in modo particolare il muro FG distaccato nella cantonata più sensibilmente dal tamburo. Simil moto orizontale di alcuna parte venuta un poco più in fuora, si vede anche nel muro esteriore A della base.

14. Gli architravi *r* delle sedici finestre son rotti tutti a riserva di uno, o due, ma dove è intero l' architrave, è rotto uno stipite. In tutte poi son rotte le cornici sopra l' architrave, e i travertini de' muri sopra, e sotto le finestre, e a lato verso i contraforti hanno moltissime aperture, e peli, che li infrangono.

15. In uno stipite di finestra *a* è degna di considerazione un' apertura verticale, che cominciando al basso nella faccia voltata all' altro stipite, piega un poco in dentro.

16. Tutte le scale a lumaca, per cui si sale dentro al tamburo, sono affatto dissetate, vedendosi rotti e distaccati gli scalini. In una di queste, per cui si sale ordinariamente ben rassettata, si vedono molti stangoni di ferro, e paletti, che reggono gli scalini rotti.

17. Entrando fra le due Cupole per il corridoretto K, si vedono delle aperture verticale negli spicchi fra' muri T de' costoloni, e si seppelliscono sotto K, dove le due Cupole son unite; le medesime anche rompono gli architravi e soglie delle porte e finestre. Lo spicchio che corrisponde sopra il pilone della Veronica, principalmente verso il mezzo delle scale T, è dissestato molto. Di tali aperture ci vien detto da chi le ha contate tutte con diligenza, trovarsene 37 nella Cupola esteriore, 39 nell' interiore.

18. Sotto il Cupolino nel corridoretto O si vedono rotte le faccie de' muri de' costoloni, seguitando per essi muri le spaccature orizontali OP, dove più alte, dove più basse, e continuando in alcun luogo fra lo spicchio della Cupola esteriore e il muro del costolone.

19. Pure nella volticella di esso corridore si vedono delle aperture, che passano verso *u* sotto gli archetti de' contraforti del Cupolino, e in alcune delle finestre del collo della Cupola si vedono rotti gli architravi, con degli altri movimenti nel muro interiore.

20. I medesimi contraforti in Q hanno molte aperture, che terminano verso il mezzo delle finestre.

21. Tutti i pilastrini di dentro tra le finestre in R a mezza altezza in circa si vedono rotti, e alcuni in due luoghi orizontalmente, restando con detta generale apertura tutto il Cupolino diviso orizontalmente per mezzo.

22. Passando ora alla parte interiore della Cupola, in tutti i sedici spicchi si vedono de' peli, o delle aperture verso S nelle cornici tonde de' Serafini di mosaico e nelle bislunghe degli Angeli, molte delle quali aprono considerabilmente i mosaici stessi.

23. Nello spicchio sopra il pilone della Veronica si vede una grandissima apertura S*q*YZ. Essa passa sotto il cornicione Z nel fregio, dove è assai tenue; và sempre dilatandosi fino all' impostatura della Cupola in *q*, indi di nuovo si ristringe morendo in cima sotto il Cupolino stesso. Sopra il pilone del Longino, che resta in faccia, vi è un' altra simile spaccatura assai sensibile, anche a guardarla giù dalla Chiesa. Sopra gli altri due piloni pure, benche alquanto minore è tale, che dalla Chiesa vi passa un vento assai gagliardo, e in varj altri spicchi pur sene vedono. Dette aperture dividono, e distaccano le figure de' mosaici, fino a farne cader qualche pezzo.

24. Gli architravi di quasi tutte le finestre in X sono rotti.

25. Ne' Pilastri del tamburo si vedono delle aperture orizontali, in *b*, per cui s' aprono le commessure de' travertini de' quali sono incrostati.

26. Ne' mosaici sopra il cornicione Z si vedono alcuni leggieri peli orizontali, benche non troppo sensibili.

27. I due arconi attorno al pilone della Veronica anno sulla cima in mezzo un leggier pelo, senza però che si discosti una parte dall' altra, o l' una scenda sotto l' altra; e sotto il cornicione tra l' arco de' SS. Simone e Giuda, e il pilone della Veronica scende un pelo, che muore assai prima di giungere all' arco. Detto pelo si vede dalla parte di fuori sopra la volta della Chiesa nel muro del tamburo inalzato sull' arco stesso, e parimente i peli de' due arconi nella parte superiore de' medesimi si riscontrano, ma tenuissimi.

28. In varj luoghi tanto di fuora, quanto fra le due Cupole si vedon rotti, o distaccati alcuni pezzi di marmo a coda di rondine messi in questi ultimi anni attroverso alle spaccature per vedere se la fabrica faceva moto.

29. I paletti de' cerchi L che cingono la Cupola interiore, si vedono in alcuni luoghi rimossi dal sito verticale per più once.

30. Di fuora nell' ordin' Attico da *m* fino ad *n* si vedono in più siti delle aperture orizontali nelle commessure de' travertini rialzati un tantino, e un simil moto si riscontra in alcuni stipiti delle finestre esteriori nel corridoretto K, che gira tra le due Cupole.

31. Questo è ciò, che abbiamo veduto cogli occhi nostri. Di più fatti esaminare i pilastri *b* col piombino si è trovato, che sbilanciano in fuora, altri trè once, altri due e mezza, ed altri meno, e altrettanto in circa

sbilanciano pur' in fuora i pilastri de' contraforti G, che stanno attaccati al tamburo. Ma de' pilastri esteriori de' medesimi contraforti alcuni sbilanciano un tantino in dentro, altri stanno a un di presso a piombo.

32. La gran spaccatura sopra il pilone della Veronica sul cornicioncino dell' Attico in *h* è di quattro once, e vene sono due vicinissime, in cui essa diramasi di un' oncia e mezza fra tutte due. Quella in faccia sopra il Longino è di due once e mezza. Ivi le spaccature in giro sono in numero 27, e tanto grosse, che messe insieme si trovano di 22 once, e poco più sù di 24.

ROYAL ASIATIC SOCIETY

INDEX

Aachen, dome, 11 (cut).

Abutments, lack of, in the dome of Florence cathedral, 22, 23; of dome of St. Peter's, 50 (cut), 53.

Agnolo, Baccio d', his work on the Palazzo Bartolini, Florence, 109; his innovation in framing window openings, 109, 116.

Aisles, treatment of façade over the, in ch. of Santa Maria Novella, Florence, 37; in ch. of Sant' Agostino, Rome, 74.

Alberti, Leon Batista, said by Milizia to be regarded as one of the principal restorers of the architecture of antiquity, 35; his use of the Roman triumphal-arch design as a model for his façades, 38, 39–43 (cuts); applied himself to writing on, rather than practising architecture, 107, 108; his influence seen in Bramante's works, 112; ch. of Santa Maria Novella, Florence, 35, 41, 42; ch. of Sant' Andrea of Mantua, 38–42 (cut and plate), 53; Palazzo Rucellai, Florence, 107, 108 (cut).

Angelo, Michael, 90; design for the tomb of Pope Julius II., 46; his work on St. Peter's, 53–65 (cuts), 237; date of his appointment as architect of St. Peter's, 53; his alterations of Bramante's plan, 53, 70; his admiration for the dome of Florence cathedral, 55; quoted on the Pantheon dome, 55; defects in his scheme, 63, 64; his makeshifts, 66; windows of Palazzo Farnese, Rome, 116, 117 (cut).

Angle, Roman treatment of the, 79 (cut); pilasters on the, 78–81 (cut).

Arabesque, Renaissance in imitation of Roman, 167 (cuts).

Arcades, of the court of Palazzo Farnese, use of Roman combination of arch and entablature, 118; cloister of Santa Maria della Pace, Rome, 119; chateau of La Rochefoucauld, France, Flamboyant arches framed with pilasters, 188.

Arch, the radical nature of the change wrought in architecture by the introduction of, was never grasped by the imperial Roman designers, 37; the Roman triumphal, used as a model of Renaissance façades, 38, 39–43 (cuts); the Roman arch and entablature scheme applied to a continuous arcade, 118, 119; of Flamboyant depressed or three-centred form, 184, 188.

Architectural carving of the Renaissance, 167–178 (cuts). *See* Carving, Architectural.

Architectural shams, use of, in the Renaissance, 32, 121, 132.

Architecture, the communal and individual spirit in, 4, 5; its division into three distinctive styles and two classes, 6, 7; proper meaning of the term, 15[2]; structural integrity a fundamental prerequisite of good, 24; use of structural members without structural meaning violates the true principles of architectural design, 68; mechanical rules cannot reach the law of the proportions of a genuine work of art, 133, 207, 249; conscious effort to be original in, is inevitably disastrous, 206; the noblest, has always been mainly a social, communal, and national, not a personal product, 206.

Arezzo, church of Santissima Annunziatta, 83; nave, 83 (cut).

Arnolfo, his design for the dome of Florence cathedral, 13 (cut), 16.

Artificial elements in architectural ornamentation, use of, 172.

Assisi, church of Santa Maria degli Angeli, 89; date, 89; general plan, 89; chapels, 90; orders, 90 (cut); piers, 90 (cut); ressauts, 90; influence of St. Peter's in, 90; façade, 90.

Athens, the Propylæa, spacing of the columns of the order, 113; National Museum, leafage of capital from Epidaurus, 174 (cut).

Attic wall, use in an interior as a support for vaulting, 151, 243; of the façade of the chapel of the Pazzi, Florence, 31; of Michael Angelo's dome of St. Peter's, Rome, 54.

Baalbek, Pantheon of, 29[2]; entablature, 29[2]; breaking of the pediment, 94, 95 (cut), 117; ressauts, 95.

Baccio d' Agnolo, architect of tower of Santo Spirito, Florence, 82.

Balconies, with balustrades, 160.

Baldinucci, *Lettera di Filippo Baldinucci Intorno al modo di dar Proporzione alle Figure*, etc., 249[2]; quoted on rules of proportion in art, 250.

Barley, ear of, in Renaissance and in Greek carving compared, 169 (plate and cut).

Barrozzi, Giacomo. *See* Vignola.
Beltrami, Luca, *Il Pantheon*, 89[1].
Benedict XIV, Pope, his inquiries as to the safety of the dome of St. Peter's, 60.
Bernini, Wren's meeting with him at Paris, 233.
Berty, Adolphe, *Les Grands Architectes Français de la Renaissance*, 194[1], 200[1]; quoted on Lescot, 194, 196[1]; quoted on De l'Orme, 200[1].
Bettini, Giovanni, his work on the church of Santa Maria Novella, Florence, 35.
Blind arcade, forms proper decoration for mediæval interiors, 29.
Bloomfield, Reginald, *A History of Renaissance Architecture in England*, 218, 232[2]; quoted on Inigo Jones, 232.
Bologna, Palazzo Bevilacqua, 165; window openings of mediæval form without central shaft, 165.
Bourges, house of Jacques Cœur, a forerunner of the Renaissance châteaux, 180.
Bramante, his birth and early work, 44; the Tempietto of San Pietro in Montorio, 44–46 (cut), 239; his work on St. Peter's, Rome, 47–53 (cuts), 63, 64, 70, 236; his use of the Pantheon and Basilica of Maxentius as models, 49–52 (cuts); alteration of his scheme by others, 49[8], 53–55, 64, 70; weakness of his scheme, 52; accused of poor workmanship, 64; ch. of Santa Maria della Consolazione at Todi, 74–77 (cuts); his work on the cathedral of Como, 144; ch. of Santa Maria delle Grazie, Milan, 140, 142; ch. of San Satiro, Milan, 138 (cut); cloister of Santa Maria della Pace, Rome, 119; Palazzo Cancelleria, Rome, 112–114 (cut).
Brescia, Palazzo Comunale, 163, of the broletto type, 163, window openings, 164; Palazzo Martinengo, peculiar and meaningless style of window opening, 166 (cut); Palazzo Municipale, leafage of capitals, 176 (cut).
Brunelleschi, the dome of Florence cathedral, 10–25, 22, 48, 50, 54, 55; his own account of the dome quoted, 18[1], 22[1]; his great ability, 21; his scaffolding, 21[8]; why he led the way in a wrong direction, 22, 25, 63; character of his work in general, 26; his use of the orders, 26; the chapel of the Pazzi, Florence, 26–32 (cuts), 175; ch. of San Lorenzo, Florence, 33; ch. of Santo Spirito, Florence, 33; the Pitti palace, Florence, 106; Palazzo Pazzi or the Quaratesi, Florence, 106; leafage of capital, 175 (cut).
Bullant, *Reigle Général de Architecture*, 192[1]; his reproduction of the order of a Roman temple in the portico of the château of Écouen, 192.
Buttresses, in support of domes, 10, 53; of St. Peter's, Rome, 53 (cut), 55, 56, 59; of a circular Gothic vault, 57[1]; concealing of, in St. Paul's, London, 244, 245 (cut).
Byzantine architecture, 6, 7; term loosely applied, 29[1]; the dome on pendentives is the distinguishing structural feature of, 29[1]; their domes were properly constructed, 63; scheme prevails in Renaissance architecture, 74.

Caen, church of St. Pierre, exterior of apse with Lombard Renaissance details applied to a Flamboyant structural scheme, 214.
Cambridge, England, Caius College, gate of honor, neo-classic features, 223.
Carving, architectural, of the Renaissance, 167–178 (cuts):
Sculpture of the human figure on Renaissance buildings has little proper architectural character, 167.
Relief carving, 167–178 (cuts); pictorial treatment of, 158; a great deal is in close imitation of Roman models, 167 (cut), 171, 172; the best is superior to that of ancient Rome, 168, 170, 176; conventionalization of forms, 169 (plate and cut); formal convolutions of, 170, 171; the finish, in many cases, mere surface smoothing, 170, 171; two schemes which are used with wearisome repetition, 171; arrangement of composition and treatment of details often artificial and inorganic, 172 (cut), 173, (cuts); the finest forms those of foliation, 170, 174; leafage of capitals, 175–178 (cuts); artificial convention of the ridges which mark the subdivisions of the leaf surface, 176 (cuts); the grotesque is uniformly weak and characterless, 176–178 (cuts); *Putti* are without particular merit as design, 178.
Casati, *I Capi d'Arte di Bramante da Urbino nel Milanese*, 138[1], 142[1].
Cecchini, *Opinione Intorno lo Stato della gran Cupola del Duomo di Firenze*, 24[1]; cited on the stability of the dome of Florence cathedral, 23[8], 24[1].
Celled vault, a Gothic circular, 20, 21; nature of its construction, 56–59 (cuts).
Chains, binding, 12, 22, 74; of the dome of Florence cathedral, 19, 24[1]; of St. Peter's, Rome, 59, 60.
Chambers, Sir William, *Treatise on the Decorative Part of Civil Architecture*, 134[1].
Chimney-stacks in shape of Doric columns in Elizabethan houses, 217 (cut), 223.

Church, the, in Middle Ages and Renaissance period, 1–3.
Church architecture, of the Florentine Renaissance, 26–43 (cuts); of the Roman Renaissance, 66–101 (cuts); of the Renaissance in North Italy, 135–153.
Clamps, metal, used in masonry, 22[2]; of St. Peter's dome, 60.
Classic inspiration in the Renaissance, 4, 97, 119.
Classic models, the classic style which was followed in the Renaissance was that of the decadent Greek schools as represented in Roman copies, 4, 247; misuse of, 33, 84.
Claudian aqueduct, 106.
Coffering, Roman, in interior of church of Sant' Andrea of Mantua, 39.
Colonnade of Bramante's scheme for St. Peter's dome, 51, 56.
Columns, small, free-standing, placed by Sansovino on each side of the pier to bear the archivolt, 123, 130, often spoken of as an innovation of Sansovino and Palladio, but instances of it occur in Græco-Roman architecture of Syria, 131 (cut); peculiar form of, claimed by De l'Orme as his own invention, 201–206 (cut), practically the same column occurs in Serlio's book, 203 (cut), an ancient adumbration of this form occurs in the Porta Maggiore, Rome, 205, other Italian examples of the same column, 205, 206, mention of its use in England, 221, 222, 229; notion that the Ionic order was designed after female proportions, 207.
Communal spirit of the Middle Ages, 4, 5.
Como, cathedral, 144–149 (cuts); description of exterior, 144; details are mediæval Lombard modified by neo-classic elements, 144; portals, illogical use of arch and entablature in, 144, 145 (cuts), 149; window openings, variety of illogical forms in, 148 (cut); tapering jamb shafts, 149.
Consoles, reversed over the aisle compartments of an exterior, 37, 74, 95.
Constantinople, Hagia Theotokos, dome, 10 (cut); church of St. Sophia, dome mentioned, 10.
Conventionalization of forms in relief carving of the Renaissance, 168 (cut).
Corinthian capitals, 84.
Corner pilasters, 78–81 (cut).
Cornice, of St. Peter's, Rome, dwarfs the effect of altitude, 68, 92; breaking of, 93–95 (cut).
Cosimo de' Medici, 103, 110.
Court, circular, of Vignola, influences De l'Orme and Jones in building the courts of the Tuileries and Whitehall, 130, 131.
Cunningham, *The Lives of the Most Eminent British Painters, Sculptors, and Architects*, 217[2], 226 ff.; quoted on the unsubstantial structures of the Renaissance in England, 217.

De l'Orme, Philibert, *Le Premier Tome de l'Architecture*, 200[2] ff., 209; a man with little artistic genius, 200, 209; overestimated by Viollet le Duc, 200[1], 207[8]; Adolphe Berty on, 200[1]; studied the antique in Rome, 200; his work on the Tuileries, 200–207 (cut); peculiar form of column claimed by him as his own invention, 201–206 (cut); his doorway, with use of the peculiar column, 203 (cut); description of doorway quoted from his book, 209 (cut).
Delaborde, Viscount, quoted, 7[8].
Della Porta, 73; façade of ch. of the Gesù, Rome, 95 (cut).
Dolcebono, architect, Church of Monastero Maggiore, Milan, 142, 143.
Domes, construction of early, 10–15; hidden externally by drum and timber roof, 10, 11 (cut); Byzantine, on pendentives, 10 (cut), 29[1]; polygonal, 12, 24[8]; pointed in outline, 12, 14, 16, 52; octagonal, 13, 14, 16; hemispherical, 24[8], 52; Arabian, 12[1]; binding chains, 12, 241; the thrust, 15[1], 24, 52; why a dome cannot have the character of a Gothic vault, 20, 21, 56–59 (cuts); proper mode of constructing, settled by the ancient Romans and Byzantines, 63; attempt of the architects of the Renaissance to solve the great dome problem, 241, 242; most modern domes modelled after St. Peter's and St. Paul's are wooden constructions, 242; of Hagia Theotokos, Constantinople, 10 (cut); of Florence cathedral, 10–25, 65, design of Arnolfo, 13, modelled on dome of Baptistery, 16, details of construction, 16–20, magnitude of the work, 21, stability of, 23; of Florence Baptistery, details of construction, 14 (cut), dome of Florence cathedral derived from, 16, 20; vault of the chapel of the Pazzi, Florence, not a dome, 27 (cut), 28, 56; ch. of San Lorenzo, Florence, 34; vault of ch. of Santo Spirito, Florence, 34; St. Paul's, London, rejected scheme, 235 (cut), likeness to Bramante's scheme for St. Peter's, Rome, 236 (cut), likeness to Michael Angelo's scheme, 237, present structure, 239 (plate), recalls Bramante's San Pietro in Montorio, Rome, 239, structural system of, 239–242 (cut); ch. of Santa Maria delle Grazie, Milan, 140 (cut); vault of the chapel of St. Peter Martyr, ch. of Sant' Eustorgio, Milan, like vault of chapel of the Pazzi, Florence, 142; ch.

of San Biagio at Montepulciano, 81 (cut); Pisa cathedral, 12 (cut); ch. of Sant' Andrea di Ponte Molle, Rome, 86; Antonio San Gallo's design for St. Peter's, Rome, 71; Tempietto, Rome, 44 (cut); cath. of Salamanca approaches the nature of a Gothic vault, 57–59 (cut); Todi, 74 (cut), 77.

Domestic architecture. *See* Palace architecture.

Doorway, of De l'Orme, 203 (cut); of Serlio, 203 (cut).

Drum, of a dome, raised above the springing of the dome, 10–14, 23; dome set on the top of, 12; of the dome of Florence cathedral, 16; the central vault of the chapel of the Pazzi, Florence, 27 (cut); the Tempietto of San Pietro in Montorio, Rome, 44; St. Peter's, Rome, 50 (cut), 53.

Du Cerceau, engraving of the Fountain of the Innocents, Paris, 195 (cut); work of Lescot on the Louvre, 197 (cut); work of De l'Orme on the Tuileries, 201 (cut), 221[2]; project for the château of Charleval, 209.

Durm, *Die Dom Kuppel in Florenz*, 19[1]; *Die Baukunst der Renaissance in Italien*, 20[1]; cited on domes, 20[1].

East end of the Redentore, Venice, 100, 101.

Elizabethan Art, 216–225 (cuts). *See* Renaissance in England.

England, Renaissance in, Architecture of the, 216–246 (cuts). *See* Renaissance in England.

Burghley House, chimneys in the form of a Doric order, 217 (cut); Cranborne Manor-House, porch and façade illustrate Elizabethan neo-classic ornamentation, 221, 222 (cut); Hardwick Castle, mention of, 217; Kirby Hall, façades of the court, 218–220 (cut), pilasters supporting nothing but miniature pedestals, 219, window openings said to have been inserted by Inigo Jones, 218, porch, description of, 220, its scheme a variation of Lescot's Louvre pavilions, 220, gables of Flemish or Dutch origin, 220 (cut); Longford Castle, 221; French influence in, 221; resemblance to château of Chambord, France, 221; Lower Walterstone Hall, window illustrating Elizabethan neo-classic ornamentation, 221 (cut); Stanway House, gatehouse portal, neo-classic features, 223; Tixall Castle, gatehouse, neo-classic ornamentation, 222; Westwood Park, porch in the form of a Roman triumphal arch, 223; Wollaton Hall, neo-classic ornamentation, 223, chimney-stacks in the semblance of Doric columns, 223, portal, 224.

Entablature, passing through the arch impost, 29, 30 (cut); in Roman art, 29, 30, 37; springing of a vault from, 29, 68; Vignola's, 85 (cut); removing of, between the ressauts, 117 (cut); Roman arch and entablature scheme applied to a continuous arcade, 118, 119; breaking of, 134 (cut), 199 (cut); used with the arch illogically in the portals of north Italy, 144, 145 (cuts); ch. of Santissima Annunziatta, Arezzo, 83 (cut); the chapel of the Pazzi, Florence, running through the impost, 29 (cut); façade of ch. of Sant' Andrea of Mantua, 40 (cut); ch. of Sant' Andrea di Ponte Molle, Rome, the two parts which have no *raison d'être* under a vault have been omitted, 89 (cut); ch. of San Biagio, Montepulciano, Rome, 78 (cut); the Gesù, Rome, has no ressauts except at the crossing, 92; ch. of St. Paul outside the wall, Rome, 30[1]; St. Peter's, Rome, interior, dwarfs the effect of its altitude, 68; façade of ch. of San Francesco della Vigna, Venice, 100; of ch. of San Giorgio Maggiore, Venice, placed above small pilasters of the archivolts, 98; The Redentore, Venice, 101; Todi, 75, 76 (cut).

Entablature block, in Roman art, 30, 37; in ch. of San Lorenzo, Florence, 33 (cut): in façade of Santa Maria Novella, Florence, 36 (cut); in nave of ch. of Sant' Agostino, Rome, 72 (cut).

Entasis of columns in church of San Giorgio Maggiore, Venice, 98.

Façades, of the Badia of Fiesole, 32 (cut); chapel of the Pazzi, Florence, 30 (cut); ch. of Santa Maria Novella, Florence, 35 (cut); old St. Paul's cathedral, London, incongruous mixture of, 230–232 (cut); Whitehall, London, banqueting hall, 227 (plate), Westminster front, 229 (cut), circular court, 230; ch. of Sant' Andrea of Mantua, 39–42 (cut); ch. of the Gesù, Rome, Vignola's, 92–95 (cuts), Della Porta's, 95 (cut); ch. of Sant' Andrea di Ponte Molle, Rome, 86–88 (cut), 92; ch. of Sant' Agostino, Rome, 74 (cut); Palazzo Cancelleria, Rome, description of, 112–114 (cut), projecting bays at each end, 113, portal of almost Greek purity of design, 114; Palazzo Massimi, Rome, 114–116 (cut); ch. of San Giorgio Maggiore, Venice, 99 (cut); Scuola di San Marco (Venice), 156–158 (cut); ch. of Santa Maria dei Miracole, Venice, a marvel of excellence in mechanical execution, 151, 152 (cut).

Fiesole, church of the Badía, façade, 32 (cut); likeness to chapel of the Pazzi, 32.
Filarete, Antonio, Ospedale Maggiore, Milan, 164 (cut); window openings, 165 (cut); arabesque on door-valves of St. Peter's, Rome, 170 (cut).
Fine Arts, of an epoch, the expression of its conditions, 1, 3; of the Renaissance, spirit of, 3, 4, 6; of the Middle Ages, spirit of, 2, 5.
Flamboyant Gothic style of Castle Châteaudun, 184 (cut).
Florence, condition in Middle Ages and in Renaissance, 2, 3; Board of Works of Florence cathedral, 21, 22[1].
Badía, façade, 32 (cut).
Baptistery, dome, details of construction, 14 (cut); forms inspiration for dome of the Florence cathedral, 16, 20; entablature, 30[1]; attic wall, 31; Ghiberti gates, inorganic composition with over-naturalism in details, 173 (cut).
Cathedral of, dome, 10–25; design of Arnolfo, 13 (cut); modelled on the dome of the Baptistery, 16, 20, 50; details of construction, 16–20; its rib system gives it nothing of Gothic character, 20; shell, 16, 54; rib system, 16 (cuts), 55; binding chains, 19, 22; magnitude of the work, 21, 22; deliberations of the Board of Works, 21[1], 22[1]; scaffolding, 21[8]; is fundamentally false in principle, 22, 23, 24; stability of, 23; lantern, 25; has nothing of classic Roman character, 25; its octagonal form, 55[1]; its fine features, 65.
Chapel of the Pazzi, 26–32 (cuts); its central vault, 27 (cut), 56; interior, 28–30 (cut); Byzantine in form, 29; orders of, 29, 31, 32; entablature, 29, 30 (cut); portico, 30 (cut), 134; panelled attic wall, 31, 81; false use of the orders, 109; leafage of capitals, 175.
Church of Santa Croce, pulpit, carving of, 171, 172 (cut); leafage of capitals, 176; *see* Chapel of the Pazzi.
Church of Sant' Jacopo Soprarno, 32.
Church of San Lorenzo, 33; celled vault, 33; mediæval features, 34; piers, 34 (cut).
Church of Santa Maria del Fiore, false front of wood mentioned, 120.
Church of Santa Maria Novella, 35; façade, 35–38 (cut), 42; orders, 35 (cut), 112; mediæval features, 35, 38; portal, 36 (cut), 41; tower, 82.
Church of Santo Spirito, 33; spire-like tower of, 81 (cut); pseudo-classic details, 82; lantern, 83.
Museum, Roman arabesque used as model for Renaissance, 167 (cut); pilaster with carving of a meaningless and artificial composition, 173 (cut).
Palazzo Bartolini, 109, window openings, 109 (cut), 116; Palazzo Gondi, 107, arcades of the court, 107, leafage of capitals, 176 (cut); Palazzo Guardagni, 107; Palazzo Mozzi, 102; the Pitti palace, its façade as monotonous as the Claudian aqueduct, which it resembles, 106; the Quaratesi, 106; Palazzo Riccardi, 103 (cut and plate), moderation shown in, 103, 110, facade, 103, window openings, 103, arcades of interior court, 104; Palazzo Rucellai, 107, 108 (cut), application of classic orders, 108, 112, window openings, 109, rustication of the masonry, 109, resemblance between Palazzo Cancelleria and, 112, 114; Palazzo Strozzi, 106, cornice, 106, fortress-like character, 106; the Strozzino, 106; Palazzo Vecchio, 102.
Florentine Renaissance, church architecture of the, 26–43 (cuts and plate); palace architecture, 102–111 (cuts and plate); *see* Renaissance architecture.
Foliation, the finest feature of Renaissance architectural carving, 174.
Fontana, Carlo, cited on dome of Pisa, 13[1]; cited on stability of Florence dome, 23[8]; quoted on Michael Angelo, 55[1], 24[1]; cited on safety of St. Peter's dome, 59; *Il Tempio Vaticano e sua Origine*, etc., Discritto dal Cav. Carlo Fontana, etc., 71[2]; cited on short-sighted admiration of St. Peter's, 71; cited on binding chains, 74.
France, Châteaux of, *see* Renaissance in France.
Castle Châteaudun, portal and bay in the Flamboyant Gothic style, 184 (cut).
Château of Azay le Rideau, 182–187 (cuts); general description, 182–184; portal and bay of characteristic French Renaissance design in which neo-classic details are worked into a pseudo-Gothic scheme, 184–187 (cut); window openings, 186; one of the finest monuments of the early Renaissance in the country, 187; portal, 214.
Château of Blois, cornice with neo-classic and mediæval elements combined, 182, (cut); court façade, 188–190 (cut); superimposed orders of pilasters of the court façade ornamented with bead mouldings, 188 (cut); polygonal staircase tower, 190 (cut); garden façade, 190; open gallery of, 191.
Château of Chambord, its multiplicity of soaring features resembles a late Gothic building, 191; resemblance of Longford Castle, England, to, 221.

Château of Charleval, 209–213 (cuts); exterior façade, pilasters which have no entablature to support, 210; unmeaning variation of the detail of the several bays, 210; interior façade, the division of the building into two stories not expressed on the outside, 211; court of Kirby Hall, England, resembles, 218.
Château of Chenonceaux, portal where Flamboyant idea is treated in neo-classic details, 188 (cut).
Château of Écouen, architectural scheme is comparatively simple, 191; in the portico of the court is reproduced the order of a Roman temple without admixture of mediæval details or Italian corruptions, 192.
Château of Fontainebleau follows the general character of early French Renaissance, 191.
Château of La Rochefoucauld, arcades of the court where Flamboyant arches are framed with pilasters, 188; open gallery, 191.
Château of St. Germain en Laye, 192, 193; buttresses, 192; window openings, 192.
Villers Cotterets, column claimed by De l'Orme as his own invention, 202 (cut).
French architecture, Renaissance influence upon, 179.
French Renaissance. *See* Renaissance in France.
Frieze, problem of the arrangement of metope and triglyph at the end of, 121, 122 (cuts); of library of St. Mark, Venice, 123 (cut).

Galleries, open, covered by extension of the main roof in French châteaux, 191.
Genoa, portal containing columns claimed by De l'Orme as his own invention, 206.
Geymüller, Baron H. von, *Die ursprünglichen Entwürf für Sanct Peter in Rom*, 47^2, 49^2.
Gisors, Church of SS. Gervais and Protais, the west front Flamboyant Gothic with incongruous Renaissance details, 214.
Gotch, *Architecture of the Renaissance in England*, 217^1; cited on Kirby Hall, England, 218^3; on Longford Castle, England, 221; on Tixall Castle, 222; on Stanway, Westwood Park, Wollaton Hall, 223.
Gothic, King James's, 227.
Gothic architectural carving, has at once an appropriate architectural character and a high degree of excellence in the development of form, 167, 172; foliation, 176; the grotesque, 177.
Gothic architecture, development and character of, cited, 7^1; cited on dome of Salamanca, 57^2, 59^2; cited on early stage of apsidal vault development, 59^1.
Gothic architecture, one of the three distinctive styles of architecture, 6; beauty and structural logic of, 7; use of wooden ties, 22^2; why a dome cannot have the character of a Gothic vault, 20, 21, 56–59 (cuts); variety which arises through some new constructive idea, 211^1; French Renaissance châteaux in which distorted neo-classic details are worked into a pseudo-Gothic scheme, 184; Wren's scheme to reconcile the Gothic to a better manner, 238, 243, 245.
Gothic art forms a new French order, a true evolution out of the ancient orders superbly adapted to new conditions, 206.
Goujon, sculptures of the fountain of the Innocents, Paris, 196.
Greek architectural carving, vitality of, 169 (cut), 171, 174 (cut); beauty of leafage, 174, 176 (cuts).
Greek architecture, the classic style which was followed in Renaissance architecture was that of the decadent Greek schools as represented in Roman copies, 4, 247; the only proper use of the classic order made in, 43.
Greek coin (of Metapontum), conventionalized ear of barley on, compared with Renaissance carving, 169, 170 (cut).
Greek sculpture on buildings is in a measure independent of the building on which it is placed, 167.
Grotesque, the, in architectural carving, the northern races only capable of conceiving it in an imaginative way, 177; in Renaissance architecture uniformly weak and characterless, 176, 177 (cuts).
Guasti, *Santa Maria del Fiore*, 13^2; quoted on Brunelleschi's account of the dome of Florence, 18^1.
Gubbio, his work on the ducal palace, Venice, arabesque after Roman model, 167 (cut).

Hermæ, of façade of the Gesù, Rome, 93; of the Tuileries, Paris, 207.
Human figure, in sculpture; on buildings, 167; has little proper architectural character in the Renaissance, 167.

Impost, continuous, 188^1.
Individuality, element of, in Renaissance architecture, 4; as developed by Middle Ages and by Renaissance, 5.
Innocent XI, Pope, his inquiries as to the safety of the dome of St. Peter's, 59.
Intellectual movement in the Renaissance, 2, 8.
Ionic volutes, 84.

Italian domestic architecture, 102; unwise admixture of classic elements in, 107, 109; spirit of display in, 105, 110.
Italian genius for painting, 6, 7.

Jamb shafts, tapering, 137 (cut), 142, 149, 150.
Jones, Inigo, his work on Kirby Hall, England, 218[8]; influence of Vitruvius and Palladio on, 226, 227; travel and study in Italy, 227; *Stonehenge Restored*, 227; Whitehall, 227–230 (plate and cut); Banqueting Hall, London, 227 (plate); had no true conception of the principles of classic art, 230; old St. Paul's west front, 230–232 (cut); the spirit of his architecture theatrical, 232.
Julius II, Pope, the building of St. Peter's, 44, 46.

Kent, William, *The Designs of Inigo Jones, consisting of Plans and Elevations for Publick and Private Buildings*, 229[2]; scheme for the palace of Whitehall, London, 229; old St. Paul's cathedral, west front, 231 (cut).

Lantern of Florence dome, 25; St. Peter's, Rome, Bramante's plan, 52 (cut); ch. of Santo Spirito, Florence, 83.
Leafage, Greek and Roman compared, 174–176 (cuts); Renaissance, 175.
Lescot, Pierre, 194; Fountain of the Innocents, Paris, 194–196 (cut); influence of Serlio, 196; west wing of the Louvre, 196–200 (cut).
Letarouilly, *Edifices de Rome Moderne*, 72[1]; cited on ch. of Sant' Agostino, Rome, 72.
Loftie, W. J., *Inigo Jones and Sir Christopher Wren*, 242[1].
Lombard blind arcade recalled in the ch. of Santa Maria dei Miracole, Venice, 151 (cut).
Lombard Romanesque architecture, towers, 82.
Lombard Romanesque, style modified by neo-classic elements mark the Renaissance architecture of northern Italy, 144; a porch which forms a model from which an illogical Renaissance portal is derived, 145 (cuts).
Lombardi, the, 149; architectural carving of, 169 (plate).
Lombardo, Martino, Scuola di San Marco, Venice, façade, 156.
Lombardo, Pietro, 149; ch. of Santa Maria dei Miracole, Venice, 151 (cut); Palazzo Corner-Spinelli, Venice, 160 (plate).
Lombardo, Tullio, 149; ch of San Salvatore, Venice, 150.
London, St. Paul's cathedral, west front of old structure by Inigo Jones, 230, 232 (cut); Wren ordered to submit designs for the restoration of, 234; his drawings for the new structure, 235–238 (cuts); rejected scheme with details of its dome, 235, 236 (cut); likeness of dome to Bramante's scheme for St. Peter's, 236; likeness to Michael Angelo's scheme, 237; façade of the second design a close copy of Inigo Jones's, 238; present structure never embodied in any set of drawings, 239; plan has no beauty comparable to that of St. Peter's, 239 (cut); comparison of, with St. Peter's, 236, 239, 241, 243, 245; plan and elevation, 239; dome, 239–242 (plate); recalls Bramante's San Pietro in Montorio, 239; structural system of, 240 (cut); vaulting of the nave has somewhat the effect of Gothic vaulting, 243; use of attic wall in support of vaulting, 243; neo-classic orders of the interior, 244, 245 (cut); intersecting of archivolt and entablature, 244; concealing of the buttresses, 244, 245 (cut); vaulting of the apse, 245.
Whitehall, Banqueting Hall, 227 (plate); of Palladian design, 228; orders of the façade, 228; scheme for the palace illustrated by Kent, 229; plan is French in character rather than Italian, 229; order of the basement has a structural character, 229 (cut); façade of circular court, orders of, 230.
Church of St. Stephen's, 246; ch. of St. Bride's, 246; ch. of St. Mary-le-Bow, 246; ch. of St. Peter's, Cornhill, 246.
Longhena, architect, Palazzo Pesaro, Venice, 163.

Maderna, the western bays of St. Peter's, Rome, 68.
Majano, Benedetto da, the Palazzo Strozzi, Florence, 106.
Mantua, church of Sant' Andrea, 38–42 (cut and plate); erected and ornamented on Roman models, 38; nave, 38 (plate); piers, 38, 39, 53; its interior one of the finest of the Renaissance, 39; its scheme foreshadows that of St. Peter's, 39, 53; façade, 39–42 (cut); early use of so-called colossal order, 40 (cut), 53, 66; resemblance of central arch to that of ch. of Santa Maria Novella, Florence, 41; panelled pilasters, 41, 160; reflection of, seen in Bramante's church of San Satiro of Milan, 138.
Martin, *Hist. de France*, 180[1].
Mathematici, Parere di tre, sopra i danni che si sono trovato nella cupola di S. Pietro, etc., 60[1].

Mathematicians' report on the condition of St. Peter's dome in 1742, 60.
Mediæval art, structural forms of, formed, for the most part, the basis of Renaissance design, 43, 247; considered false and barbaric by the neo-classicists, 97, 248; its architects transformed the classic orders in a creative way, 248.
Melani, *Architettura Italiana*, 150[1], 154[1], 250[2]; quoted on architecture of the Renaissance, 250.
Metope, problem of making half a metope fall at the end of the frieze, 121, 122 (cuts).
Michelozzi, The Riccardi, Florence, 103; praised by Vasari, 105; the Strozzino, Florence, 106; chapel of St. Peter Martyr, ch. of Sant' Eustorgio, Milan, 142; his work in Venice, 149.
Middle Ages, conditions of the, 1; spirit of, and that of the Renaissance, 2, 5–6; individuality of, 5.
Middleton, *Ancient Rome*, 52[1]; cited on the dome of the Pantheon, 52[1].
Milan, church of Sant' Eustorgio, chapel of St. Peter Martyr, 142; circular celled vault, 142.
Church of San Lorenzo mentioned, 140.
Church of Santa Maria delle Grazie, 140 (cut); description of exterior, 140; dome, 140; its encircling arcade suggests the encircling colonnade of the dome of St. Peter's, 142.
Church of Monasterio Maggiore, 142; compound window openings, 143.
Church and sacristy of San Satiro, 138–140 (cut); reflects ch. of St. Andrea of Mantua, 138; orders of the interior of the sacristy, 139 (cut).
Ospedale Maggiore, 164; larger features are of mixed and debased mediæval character with no application of classic orders, 164; window openings, 165 (cut).
Palazzo Brera, arches sprung from pairs of columns connected by short entablatures, 166.
Milanesi, cited, 34[1], 35.
Milizia, *Memorie degli Architette*, etc., quoted, 23[2], 84[1]; cited on Alberti, 35, 44; cited on use of entablature block, 36; cited on safety of the dome of St. Peter's, 58[4]; cited on the strengthening of the dome of St. Peter's, 62; on ch. of Consolazione at Todi, 74; on spire-like tower of ch. of Santo Spirito, Florence, 81; cited on Vignola, 84; on dome of Sant' Andrea di Ponte Molle, Rome, 86; on window openings framed with orders, crowned with pediments, 109; quoted on Sansovino, 119, 121; quoted on Vignola, 128; quoted on De l'Orme, 194.
Montalembert, cited, 5[1].
Montepulciano, church of San Biagio, 77–83 (cuts); interior, 78–80 (cut); ressauts, 78, 90; Doric order, 78; use of pilasters on the angles, 78, 81; exterior, 81–83 (cut); dome, 81; façade, 81; panels of upper story, 81; orders, 81, 83; towers, 81.

Naples museum, composite capital showing Roman leafage, 175.
Nave of ch. of Santissima Annunziatta, Arezzo, 83 (cut); Sant' Andrea of Mantua, 38 (plate); ch. of Sant' Agostino, Rome, 72; ch. of San Giorgio Maggiore, Venice, 97, 98.
Nelli, *Discorsi di Architettura*, 21[8]; quoted on Brunelleschi's scaffolding, 21[8]; cited on stability of Florence dome, 23[8], 24[1].
Neo-classicists, their confidence in the art of Roman antiquity as the embodiment of all true principles of architectural design, 97.
Neo-pagan spirit of the Renaissance, 2, 4, 8.
Nicholas V, Pope, rebuilding of basilica of St. Peter, 47.
Norton, C. E., *Church Building in the Middle Ages*, 21[1]; cited on building of the dome of the Florence cathedral, 21[1].

Openings, mediæval Florentine form, 102 (cut); of domestic architecture in Perugia, 102; reveals are shallow in earlier buildings, 104; cathedral of Como, variety of illogical forms in, 148 (cut). *See* Window openings.
Order and symmetry of a mechanical kind seen in Renaissance architecture, 133.
Order, colossal, so-called, early use of, 40.
Order, classic, use of without structural meaning in Renaissance architecture, 6, 29, 43, 244; Brunelleschi's use of, 26; unsuitable for a building of mediæval character, 29, 43; disposition of, in various Renaissance façades, 42; misapplication and distortion of by Italians of the Renaissance, 43; used with propriety by the Greeks alone, 43; the usual size of, compared with that of St. Peter's, Rome, 67; Vignola's treatise on the Five Orders, 84; the proportions of the, altered by Vignola, 85; Vitruvius quoted on maintaining the purity of, 86; inappropriate in a church interior, 98; application of, in palace architecture, 107, 109; Renaissance innovation in spacing the columns of, 112, 114; podium introduced beneath, 112; where the columns of, act somewhat as buttresses, 131; aberrations and makeshifts made necessary by efforts to apply the classic orders to uses for which they were not adapted, 244;

transformed by the mediæval architects in a creative way, 248; De l'Orme's claim of having invented a new order, which he called the French order, 202 (cut), 206.
Of the Parthenon, Athens, 67; the Temple of the Sun at Baalbek, 67[1]; chapel of the Pazzi, Florence, 29, 30 (cut); ch. of Santa Maria Novella, Florence, 35, 42 (cut); Palazzo Rucellai, Florence, 108, 109 (cut); St. Paul's, London, interior, difficulties of combining neo-classic style of, with the high vaulting, 243, 244; Whitehall, banqueting hall, London, 228 (plate), 229 (cut), 230; ch. of Sant' Andrea of Mantua, 40 (cut), 42; ch. of San Biagio at Montepulciano, 78, 81 (cuts); Duomo of Pienza, 42; St. Peter's, Rome, interior, 53, 66, dwarfs the effect of magnitude in the interior, 67, size compared with that of the Parthenon and Pantheon, 67, diminishes the effect of altitude of the vaulting, 68; Palazzo Cancelleria, Rome, podium introduced beneath, 112, innovation in spacing the columns of, 113; court of Palazzo Farnese, Rome, treatment of the capital, 118; ch. of San Francesco della Vigna, Venice, 100; ch. of San Giorgio Maggiore, Venice, raised on pedestals, 98, 101, placed under the archivolts, 98; library of St. Mark, Venice, 122, 123 (cuts); Palazzo Contarini, Venice, 161; Palazzo Vendramini, Venice, full orders in all three stories of façade, 161, 162, arrangement in lateral bay of façade, 162; town hall portico of Vicenza, the columns of, act somewhat as buttresses, 130, 131. *See* Columns.
Ornamentation, architectural, use of artificial elements in, 172–174 (cuts); use of forms drawn from organic nature, 174. *See* Carving, architectural.
Oxford, St. Mary's Church, porch, mentioned, 227; Sheldonian theatre, Wren quoted on, 234.

Padua, town hall, Palladio's scheme for town hall of Vicenza derived from, 130, 131.
Painting, Italian genius for, 6, 7; most Renaissance architects were painters and sculptors, 6, 7, 84, 96.
Palace architecture of the Renaissance, Florentine, 102–111 (cuts and plate); Roman, 112–134 (cuts); of North Italy, 154–166 (cuts); Venetian, 154–163 (cuts). *See* Renaissance architecture.
Palladian architecture, 95; introduced into England by Jones, 227; far from true to classic design, 228, 230; rules are arbitrary and not in accord with the true principles of ancient art, 248.
Palladio, *Quatro libri dell' Architettura di Andrea Palladio*, 96[4]; his influence greater than that of any other architect of the Renaissance, 95, 248; quoted on his study of architecture, 96, 97; quoted on his admiration of his own work, 131[1]; his compositions based on order and symmetry of a mechanical kind, 133; concerned with the superficial appearance in architecture, 133; ch. of San Francesco della Vigna, Venice, 100; ch. of San Giorgio Maggiore, Venice, 97–100 (cuts); ch. of the Redentore, Venice, 100 (cut); Palazzo Valmarano, Venice, 133; Loggia Bernarda, Vicenza, 133 (cut); Palazzo Colleone-Porta, Vicenza, 133; Palazzo Porta-Barbarano, Vicenza, 133; the portico of the town hall, Vicenza, 130–132 (cut).
Pallaiuolo, Simone, Palazzo Guardagni, Florence, 107.
Palustre, Leon, *L'Architecture de la Renaissance*, 89[2]; quoted on the entablature of St. Andrea di Ponte Molle, Rome, 89.
Paris, Church of St. Etienne du Mont, of Flamboyant Gothic form, with neo-classic west front and central portal, 213, 214; portal with columns modelled after those claimed by De l'Orme as his own invention, 214.
Church of St. Eustache, a Gothic structure overlaid with Renaissance details, 213.
Fountain of the Innocents, 194–196 (cut); a reproduction of the scheme of a Roman triumphal arch, 196.
Hotel Cluny, a forerunner of the Renaissance châteaux, 180.
Louvre, Lescot's work on the west wing, 196–200 (cut); orders, 198, 199; the salient pavilions, have no function, 198; breaking of the entablature in, 199; sculptured festoons heavy and formal, 199.
Palace of the Tuileries, work of De l'Orme, 200–207 (cuts); peculiar form of column claimed by De l'Orme as his invention, 201–206 (cut); basement arcade, 207; attic story, 207.
Parthenon, metal clamps in masonry, 22[2]; effect of a dome erected on, 89.
Pavia, Church of the Certosa, general description of façade, 136–137; Lombard Romanesque forms with pseudo-classic elements engrafted on them, 137; window openings, 137 (cut).
Church of San Pietro in Cielo d'Oro, portal framed by structural members without structural meaning, 148 (cut).
Pazzi, Chapel of the. *See* Florence.

Pediment, breaking of the, 93–95 (cut), 117 (cut); one placed within another, 95 (cut); of Baalbek, 95 (cut).
Pellegrini, Palazzo Brera, Milan, 166.
Perugia, domestic architecture, 102.
Church of S. Bernardino, general description of façade, 135 (plate); affords a rare instance of the use of colour in Renaissance architecture, 135.
Peruzzi, Baldassare, his plan for St. Peter's, Rome, 47[2]; Palazzo Massimi, Rome, 114–116 (cut).
Piers, pierced transversely and longitudinally, 38, 39, 150 (cuts); ch. of Santissima Annunziatta, Arezzo, 83 (cut); ch. of San Lorenzo, Florence, 34 (cut); château of Blois, France, polygonal staircase tower, 190 (cut); ch. of Sant' Andrea of Mantua, 38, 39 (plate); ch. of Sant' Agostino, Rome, alternate system, 72; St. Peter's, Rome, 53, 66, 68; Todi, 75, 76 (cut); ch. of San Giorgio Maggiore, Venice, 97, 98 (cut); ch. of St. Mark, Venice, 150 (cut); ch. of San Salvatore, Venice, 151 (cut). *See* Orders.
Pietra Santa, Giacomo da, said to have built the ch. of Sant' Agostino, Rome, 72.
Pilaster strips, form proper decoration for mediæval structures, 29, 82.
Pilasters, coupling of, 31; use of, in the treatment of the angles of buildings, 78–81 (cut); the panelling of, 160; of Kirby Hall, England, support nothing but miniature pedestals, 219; portico of the chapel of the Pazzi, 31 (cut); façade of Santa Maria Novella, Florence, 37, 38; National Museum, Florence, meaningless and artificial design in carving, 173 (cut); château of Azay le Rideau, France, combination of pseudo-Gothic and neo-classic forms, 186 (cut): façade of ch. of Sant' Andrea of Mantua, 41 (cut); San Biagio, Montepulciano, use of, on the angles in interior, 78 (cut); Palazzo Contarini, Venice, grouping of those of three different proportions and magnitudes, 161 (cut). *See* Orders.
Pisa cathedral, dome, 12.
Pisan Romanesque architecture, of façade of Santa Maria Novella, Florence, 37.
Poleni, *Memorie Istorische delle Gran Cupola del Tempio Vaticano*, 59[8]; his strengthening of the dome of St. Peter's, 62, 63; quoted on poor work of Bramante, 64.
Pollaiuolo, Simione, called Il Cronaca, court and cornice of Palazzo Strozzi, Florence, 106.
Pontoise, church of St. Maclou, remarkable Renaissance north portal, 214.
Porches, church of San Zeno of Verona, a model from which an illogical form of Renaissance portal is derived, 146 (cut); Cranborn Manor-House, England, illustrates Elizabethan neo-classic ornamentation, 221, 222 (cut); Kirby Hall, England, 220; resemble Louvre pavilions, 220.
Portals, from Serlio, in which the entablature is removed between the ressauts, 117, 118 (cut); illogical use of arch and entablature in the portals of north Italy, 144, 145 (cuts); illogical Renaissance portal derived from the porch of San Zeno of Verona, 146 (cut); unreason of Renaissance portals compared with those of Greek or Gothic art, 156; of cath. of Como, illogical use of arch and entablature, 144, 145 (cut), 149; Stanway House (England) gatehouse, neo-classic features, 223; Wollaton Hall, England, illustrates Elizabethan neo-classic ornamentation, 224 (cut); ch. of Santa Maria Novella, Florence, 36 (cut), 41; château of Azay le Rideau, France, neo-classic details worked into a pseudo-Gothic scheme, 184; château of Chenonceaux, France, Flamboyant and neo-classic forms combined, 188 (cut); ch. of San Pietro in Cielo d' Oro, Pavia, 148 (cut); Palazzo Cancelleria, Rome, of almost Greek purity of design, 114; Scuola di San Marco, Venice, 156 (cut); Porta del Palio, Verona, 125 (cut).
Portico, château of Écouen, the order of a Roman temple is produced without admixture of mediæval details or Italian corruptions, 192.

Raphael, plans for St. Peter's, Rome, 47[2].
Ravenna, ch. of San Vitale mentioned, 140.
Relief carving of the Renaissance, *see* Carving, Architectural, of the Renaissance.
Renaissance, conditions of, 1; intellectual movement in, 2, 8; neo-pagan revival in, 2, 8; its spirit as manifested in its fine arts, 3, 4, 6, 8; its architects were sculptors and painters, 6; art of painting in, 7.
Renaissance architecture, element of individuality in, 4, 6; the classic style which was followed was that of the decadent Greek schools as represented in Roman copies, 4, 247; architects were generally also painters and sculptors, 6, 96; a surface architecture, 6; little heed given to structural propriety, 23, 64, 66, 116; use of the classic order, 29; passing of the entablature through the arch imposts, 29; use of stucco, 32; alternation of wide and narrow intervals, 38; misapplication of the classic orders, 43, 247; the designers worked on a foundation of mediæval ideas from which they could not free

themselves, 43, 247; use of Roman models, 43, 117, 119, 247; breaking of the pediment, 93 (cut), 117; use of structural members without structural meaning, 116, 133, 135, 156, 165; entablature removed between the ressauts, 117; later architecture the work of men of little genuine artistic inspiration, 119, 133; architectural shams extensively produced by later architects, 121, 132; attempt to make half a metope fall at the end of the frieze, 121–122 (cut); barbaric compositions of frequent occurrence in later, 124; based on order and symmetry of a mechanical kind, 133; independent personal effort to be original at the bottom of most of the mistakes of, 206; no architects of, had a true conception of the principles of classic art, 230; theatrical in its spirit, 232; no true adaptation of classic elements in Renaissance design, 247; great influence of short-sighted and mechanical Italian rules in modern times, 248, 250; claims advanced for it as the only architecture of correct principles since that of classic antiquity are without justification, 250; sculpture of, *see* Carving, architectural, of the Renaissance.

Renaissance architecture, in England, 216–246 (cuts);

Elizabethan art, 216–225 (cuts); its best features were of native growth out of the mediæval feudal castle and the latest phase of perpendicular Gothic, 216, 225; use of classic details, 217, 218–225 (cuts); flimsiness of material in interiors and ornamental details, 217, 218; buildings have little foreign character in plan and outline, but neo-classic forms are confined to ornamentation, 218, 221; strange aberrations of design wrought by foreigners and native craftsmen, 218–225 (cuts); fantastic gables features of the more showy architecture, 220; Flemish and Dutch ornamental workers, 220, 224; the design and execution of the buildings were performed by building craftsmen, 224, 225.

Work of Jones and Wren, 226–246 (plate and cuts); use of classic details becoming established, 226, 228; acceptance of neo-classic style by the people, 228, 232, 233.

Renaissance architecture, Florentine; church architecture, 26–43 (cuts); palace architecture, 102–111 (cuts and plate). *See* also Renaissance architecture and Florence.

Renaissance architecture, in France, early, 179–193 (cuts); the French Renaissance château, conditions which gave rise to, 180; evolved from the feudal castle of the Middle Ages, 180, 201; factitious in composition, 179, 181, 211[3]; distorted neo-classic details worked into a pseudo-Gothic scheme, 184, 190; a survival of later Gothic habit of design is shown where the continuity of upright lines is obtained in the use of superimposed pilasters with ressauts in the entablatures, 188, 190; has a distinctly French expression, 179, 193, 194; later French Renaissance given a more marked neo-classic dress by Lescot and De l'Orme, 194–215; misuse of structural forms in ornamentation, 199; excessive profusion of ornament, 200; church architecture, Gothic structural forms largely entwined with a misapplication of classic details, 213–215.

Renaissance architecture, Lombard, 135, 136–149; neo-classic influences confined largely to ornamental details, 136; illogical scheme of openings which became characteristic of, 144–149 (cuts).

Renaissance architecture, North Italian, profusion of ornament a marked characteristic of, 136; Lombard Romanesque forms modified by neo-classic features mark the character of, 144; church architecture of the, 135–153 (cuts); mixture of mediæval and pseudo-classic forms, 149; palace architecture of the, 154–166 (cuts); later architecture of the, based on the art of Palladio and Vignola, 165. *See* Renaissance architecture.

Renaissance architecture, Venetian, 135; church architecture, 149–153; palace architecture, 154–163 (cuts); its most characteristic architecture is that of the palaces of the grand canal, 159; the usual scheme of the front that of a wide central bay wholly occupied by openings flanked by lateral bays with a solid wall on either side of an opening, 162, 163; neo-classic influences confined largely to ornamental details, 136; illogical scheme of openings which became characteristic of, 144–149 (cuts); drew some of its material from Florentine and Lombard sources, 149; later architecture follows the measurably uniform style of Vignola and Palladio, 153, 162; overlaying with heavy orders the typical unequal main divisions of the palace fronts, 162, 163.

Ressauts, irrational use of, 38; of façade of Santa Maria Novella, Florence, 37; of San Francesco of Rimini, 38; of ch. of Santa Maria degli Angeli, Assisi, 89.

Rhenish Romanesque style of ch. of Sant' Agostino, Rome, 72.

Ribs, system of, in Florence dome, 16–19, 55 (cuts); in Gothic vaulting have nothing of the character of dome ribs, 20, 21, 56; of St. Peter's dome, Rome, 55, 56, 59; of cath. of Salamanca, 57, 58.
Riccio, Antonio, his work on east side of the court of the Ducal Palace, Venice, 154 (plate).
Rimini, San Francesco of, church of, 35; façade, 38, 42; modelled on the arch of Septimius Severus, 38, 42; ressauts, 38.
Roman arch and entablature scheme applied to a continuous arcade, 118, 119.
Roman architecture, furnished models for Renaissance architecture, 38, 40, 43, 97; use of entablature block in, 37; use of the arch in, 37; the ressaut, 38; triumphal arch design a model for Renaissance façades, 38, 39–43 (cut); treatment of the angle, 79 (cut).
Roman architectural carving, furnished models for Renaissance work, 167; tasteless and meaningless designs, 170[1]; leafage of, compared with Greek leafage, 174 (cuts).
Roman Renaissance, church architecture of the, 66–101 (cuts); palatial architecture, 112–134. *See* Renaissance architecture and Rome.
Romanesque architecture, 7; Rhenish Romanesque style of ch. of Sant' Agostino, Rome, 72.
Rome, its monuments the inspiration of Renaissance architecture, 3, 43, 247.
St. Peter's, rebuilding and demolishing of the old basilica, 47; work of Rossellino, 47; work of Bramante, 47–53 (cuts), 63, 64, 70; date of the beginning of building, 47; general plan, 47, 53, 66 (cut); the plans of Raphael and Peruzzi, 47[2]; work of Michael Angelo, 54–65 (cuts), 66; work of Maderna, 66, 245; short-sighted admiration of, 71; design of Antonio San Gallo, 71; influence of, seen in other churches, 90, 92; arabesque on door-valves, 170 (cut); Wren's scheme for St. Paul's based on the model of, 236, 237; comparison of, with St. Paul's, 236, 239, 241, 243, 245.
Dome, 44–65 (cuts); use of the Pantheon and the Basilica of Maxentius as models, 49–52 (cuts); drum, 50 (cut), 53; abutments, 50 (cut), 53; colonnade, 51, 56, 142; lantern, 52; piers, 53, 66, 68; buttresses, 53 (cut), 55, 56, 59; design of Michael Angelo, 53–65 (cuts); his alterations of Bramante's scheme, 53–55, 64; attic, 54 (cut); vault shells, 54 (cut), 55; ribs, 55, 56, 59; binding chains, 59, 60, 62; ruptures in, 59, 60–63 (cut), 64; mathematicians' report of the condition of the structure in 1742, 60 (cut); violation of laws of stability in, 64, 65; strengthening of Bramante's work, 64[1]; its beauty exaggerated, 65; likeness of Wren's scheme of St. Paul's to, 236.
Exterior, 68–70 (cut); makeshifts necessitated by the use of the colossal order, 68–70 (cut); aisle walls carried to the height of the clerestory, 68, 245; domes over the aisles, 68–70 (cut), 245.
Interior, Bramante's scheme, 53, 66; Michael Angelo's work, 53, 66–70; piers, 53, 66, 68; effect of magnitude dwarfed by the colossal order, 53, 67, 68; great size of the structural parts, 68; part of the vault hidden by the cornice, 68, 92; its ornamentation a cheap deception, 71; ressauts, 90, 92.
Church of the Gesù, 91–95 (cuts); Vignola's plan given in his book on the Five Orders, 92; interior, general scheme, 92; orders, 92; entablature 92; façade, 92–95 (cuts); broken pediments of, 93, 95; scroll work and hermæ, 93; reversed consoles, 95; tablets, 95 (cut).
Church of Sant' Agostino, 72–74 (cuts); its architects, 72; date, 72; the general style is Rhenish Romanesque, 72; nave, 72; Renaissance ornamental details, 72 (cut); façade, 73, 74 (cut); truncated pediment, 74; tablets in wall surface, 74; dome, 74.
Church of Sant' Andrea di Ponte Molle, 86–89 (cuts); dome, 86; façade, 86–88 (cut), 92, 101; likeness to the Pantheon, 87; entablature, 89 (cut).
Church of San Biagio, entablature, 78 (cut).
Church of Santa Maria della Pace, cloister arcade, 119.
Church of St. Paul outside the wall, entablature, 30[1].
The Tempietto, 44–46 (cut); the dome and its drum, 44, 74; resemblance to the temple of Vesta, 44, 45; orders, 45, 83; dome of St. Paul's, London, recalls, 239.
Arch of Septimius Severus used as model of façades by Alberti, 38, 39–43 (cut); treatment of angle in, 79.
Arch of the Silversmiths, 39.
Arch of Titus, scheme of, used by Sansovino in the Loggetta of the Campanile, Venice, 123.
Basilica of Maxentius, columns and arches, 37; as model for St. Peter's, 49.

Baths of Caracalla, entablature, 29.
Pantheon, 10, 15[1], 87; said to be taken as model for dome of Florence cathedral, 16; grandeur of, 23; as model for Bramante's dome of St. Peter's, 49, 52 (cuts); its internal character, 52[1]; abutments, 49 (cut), 52; not a homogeneous structure, 89.
Porta Maggiore, form of column similar to that claimed by De l'Orme as his own invention, 205.
Temple of Peace. *See* Basilica of Maxentius.
Theatre of Marcellus, its façade followed by Sansovino for the library of St. Mark's, 122.
Palazzo Cancelleria, façade, 112–114 (cut), window openings, north Italian, 112, 149; podium introduced beneath each order, 112; spacing of the columns of the order, 112, 114; projecting bays at each end, 113; portal of almost Greek purity of design, 114; court, 114.
Palazzo Farnese, 116–118; window openings framed by structural members without structural meaning, 116, 117 (cut); removal of entablature between ressauts over window openings, 117 (cut); court, treatment of columns, 118.
Palazzo Girand Torlonia, 112; window opening, north Italian, 112, 149.
Palazzo Massimi, façade described, 114–116 (cut); wall above basement unbroken by pilasters or string courses, 114; portico, 114, 115; spacing of columns and pilasters of basement, 114; window openings, 115.
Ronsard, his poem on Lescot cited, 196.
Roof, timber, built over early domes, 10, 11.
Rossellino, his use of the orders in the Duomo of Pienza, 42, 43; his work on the basilica of St. Peter, Rome, 47.
Ruptures, in the dome of Florence cathedral, 23, 24; in the dome of St. Peter's, Rome, 59, 60–63 (cut); not necessarily alarming in a properly constructed vault, 62[2].
Rustication of masonry, 109.

Salamanca, cathedral of, dome, how it approaches and differs in nature from a Gothic vault, 57–59 (cuts).
San Gallo, Antonio, the elder, 90; his work on ch. of San Biagio, Montepulciano, Rome, 78–83; ch. of Santissima Annunziatta, Arezzo, 83.
San Gallo, Antonio, the younger, his design for St. Peter's, Rome, 71; Palazzo Farnese, Rome, 116.
San Gallo, Giuliano da, designed Palazzo Gondi, Florence, 107, 176; leafage of capital, 176 (cut).
San Giovanni, Florence Baptistery, 14, 16.
Sanmichele, Porta del Palio, Verona, 125 (cut); Palazzo Canalla, Verona, 126; Palazzo Pompei alla Vittoria, Verona, 126; Palazzo Bevilacqua, Verona, 126, 127 (cut).
Sansovino (Jacopo Tatti), his predilection for classic forms, 119, 120; library of St. Mark, Venice, 121 (cut), 130; his attempt to make half the metope fall at the end of the frieze, 121, 122; small free-standing column placed on each side of the pier to bear the archivolt, often spoken of as an invention of, 123, 130, 131 (cut); Loggetta of the Campanile, Venice, 123; his use of a form of column claimed by De l'Orme as his own invention, 205.
Scaffolding said to have been employed by Brunelleschi, 21[8].
Scamozzi, 133, 134; peculiar form of compound window, sometimes called his invention, 134 (cut).
Scrollwork, of façade of the ch. of the Gesù, Rome, 93.
Sculpture, on buildings, has in Gothic art only an appropriate architectural character, and a high degree of excellence in the development of form, 167; Greek, is in a measure independent of the building on which it is placed, 167; of the human figure in Renaissance art, has little proper architectural character, 167; relief carving of the Renaissance, 167–178 (cuts). *See* Carving, architectural, of the Renaissance.
Sebastiano, architect of ch. of Sant' Agostino, Rome, 72.
Serlio, *Regole Generale di Architettura di Sebastiano Serlio*, 44[2], 196[2]; cited on the work of Bramante on St. Peter's, Rome, 47[2], 49; quoted on corner pilasters, 79; cited on the removal of the entablature between the ressauts, 117 (cut); influence on Lescot, 196; his column practically the same as that claimed by De l'Orme as his own invention, 203 (cut).
Sgrilli, *Discrizione e Studj dell' Insigne Fabbrica di S. Maria del Fiore*, quoted, 23.
Siena, Palazzo Pubblico, 102.
Soane Museum, John Thorpe's drawings, 218[2], 221.
Spavento, church of San Salvatore, Venice, 150.
Spire, Gothic, far removed from anything proper to classic composition, 83.
Steeples, Wren's, 246; are the outcome of the Renaissance spire-like towers, 82.
Strozzi, Filippo, 110.

Stucco, use in Renaissance architecture, 32, 132, 133.
Syria, St. Simeon Stylites, use of the free standing column under the archivolts, 131 (cut); Basilica of Shakka, form of window opening reproduced in architecture of the Renaissance, 134.

Tablets, rectangular in façade surface, 74; ugly shapes of, in the façade of The Gesù, Rome, 95 (cut); of Vignola, 95 (cut).
Tatti, Jacopo. *See* Sansovino.
Thorpe, John, his plans show a French influence, 218, 220; little is known of him, 218[2]; Kirby Hall, England, 218–220 (cuts); Longford Castle, 221.
Thrust, the, of a dome, 15[1], 24, 52.
Ties, wooden used in Gothic buildings, 22[2].
Tivoli, temple of Vesta, resemblance of the Tempietto, Rome, to, 44, 45 (cut).
Todi, church of Santa Maria della Consolazione, 74–77 (cuts); the scheme is Byzantine, 74, 77; dome, 74, 75, 77; interior, 75 (cut); orders, 75–77 (cut); piers, 75, 76; exterior, 77 (cut); similarity between the sacristy of San Satiro, of Milan, and, 140; between cath. of Como and, 144.
Towers, spire-like, of the Renaissance, 81; scheme based on the Lombard Romanesque tower and the mediæval campanile, 82; of ch. of San Biagio at Montepulciano, 78, 81 (cuts); of ch. of Santo Spirito, Florence, 81, 82 (cut); Giotto's, 82.
Triglyph, problem of the arrangement of, at the end of the frieze, 121, 122 (cuts).
Triumphal arch used as a model of Renaissance façades, 38, 39–43 (cuts).

Vanvitelli, his placing of binding chains around the dome of St. Peter's, Rome, 62.
Variety, unmeaning, different from that which results from an active inventive spirit, 211[1].
Vasari, *Le Opere di Giorgio Vasari* quoted, 16; cited on Brunelleschi's account of the dome of Florence, 18[1], 22[1]; cited, 33[1], 110; cited on Alberti's work, 35, 44, 107; cited on rebuilding St. Peter's, Rome, 47; his short-sighted admiration of St. Peter's, 71; quoted on Michelozzi, 105, 149; cited on the Palazzo Strozzi, Florence, 106.
Vault, Gothic, why a dome cannot have the character of a, 20, 21, 56–59 (cuts).
Vaults, the nature of the construction of a circular-celled vault on Gothic principles, 56–59 (cuts); of the chapel of the Pazzi, Florence, 27, 28, 56; ch. of San Spirito, Florence, 34; chapel of St. Peter Martyr, ch. of Sant' Eustorgio, Milan, 142.
Venetian Renaissance. *See* Renaissance, Venetian.
Venice, church of The Redentore, general scheme, 100 (cut); east end, 100, 101; orders, 101; façade, 101.
Church of S. Fantino, 151.
Church of San Francesco della Vigna façade, 100.
Church of San Giorgio Maggiore, 97; nave, 97, 98; piers, 97, 98 (cut); orders raised on pedestals, 98, 99; placed under the archivolts, 98; entablature, 98, 99, 101; façade, 99 (cut), 101.
Church of Santa Maria Formosa reproduces features of St. Andrea of Mantua with details of the character of the Lombardi, 153.
Church of Santa Maria dei Miracole, 151 (cut), 156; refinement in details, 151; façade a marvel of excellence in mechanical execution, 151, 152 (cut); Lombard blind arcade recalled in decoration of the façade, 151; carving of ear of barley and flower stalks, 169 (plate); carved mask from a pilaster, 178 (cut).
Church of St. Mark, piers pierced longitudinally and transversely, 150 (cut).
Church of San Salvatore, 150, 151; peculiar pier supports of the barrel vaulting, 150 (cut); use of an attic as support for vaulting, 151; its system is that of the ch. of St. Mark, 151.
Church of San Zaccaria, general description of interior, 149, 150; singular column of nondescript character, 150 (cut).
Palaces of the grand canal, finest are those of the later mediæval period, 159.
Palazzo Contarini, 161; details of façade, 161; window openings, 161 (cut); grouping of pilasters of three different proportions and magnitudes, 161 (cut).
Palazzo Corner-Spinelli, 160 (plate); window openings, mediæval features, incompleted circle in the tympanum space, 160; pilasters, panelling of, 160.
Palazzo Cornaro, description of the front, 124; unequal main divisions of the front overladen with heavy orders, 162.
Ducal Palace, east side of the court, 154 (plate); façade described in detail, 154, 155; window openings described, 154, 155; north side of court, window openings, 155 (cut); giant's stair, fine execution of, 156; arabesque after Roman model, 167 (cut); grotesque creatures in the relief of the Scala d' Oro, 177 (cut).
Palazzo Grimani, façade, 163.
Palazzo Pesaro, 163.

Palazzo Valmarano, 133.
Palazzo Vendramini, 161; full orders in all three stories, 161, 162; grouping of mediæval window openings, 162; balconies, 162; disproportion of topmost entablature, 162.
Library of St. Mark, 121 (cut); arrangement of the metope in the frieze, 121, 122 (cuts); orders, 122; frieze and balustraded balconies, 123; free standing column under the archivolt in the order of the upper story, 123, 130.
Loggetta of the Campanile, 123.
Scuola di San Marco, description of façade, 156–158 (cut); portal, described, unreason of its composition, 156 (cut); carvings, 157.
Scuola di San Rocco, façade described, 158 (cut); portal, 159; window openings with mediæval features and others with pseudo-Corinthian colonnettes, 159 (cut), 160.
The Zecca, form of column claimed by De l'Orme as his own invention, 205.
Verona, church of San Zeno, porch and portal, 146 (cut).
Palazzo Bevilacqua, description of façade, 126, 127 (cut).
Palazzo Canalla, 126.
Palazzo del Consiglio, 163 (plate); presents a mediæval broletto scheme dressed out in Renaissance details, 163; in respect to its finest qualities it belongs to the Middle Ages, 163.
Palazzo Pompei alla Vittoria, 126.
Porta del Palio, description of façades, 125 (cut), 126.
Vicenza, Town hall portico by Palladio, 130–132 (cut); use of free standing columns under the archivolts, 130; columns of the great orders act somewhat as buttresses, 131.
Palazzo Colleone-Porta, 133.
Palazzo Porta-Barbarano, 133.
Palazzo Valmarano, 133.
Loggia Bernarda, 133 (cut).
Vignola, *I Cinque Ordine d'Architettura*, 84, 85, 92; entablature which he calls his own invention, 85 (cut); his unclassic and incongruous combinations, 86, 95; eliminates mediæval forms, 92; tablet from, 95 (cut); great influence of his writings, 248; ch. of Sant'.Andrea di Ponte Molle, Rome, 86–89 (cuts), 92; ch. of Santa Maria degli Angeli, Assisi, 89; ch. of the Gesù, Rome, 91–95 (cuts); Palazzo Caprarola, near Viterbo, 128.
Violette-le-Duc, *S. V. Château*, 171[1], 181[1]; *Entretiens sur l'Architecture*, 207[8]; quoted on French architects of the Renaissance, 179[1]; quoted on château of Chambord, 191; quoted on De l'Orme, 200[1]; his genius more scientific than artistic, 200[1]; quoted on the château of Charleval, 211, 212; errs in his reasoning in his discourse on Renaissance architecture, 211–213.
Villani, quoted, 2.
Villari, cited, 3[1].
Viterbo, Palazzo Caprarola, near Viterbo, general description of, 128–130; a source of inspiration to later architects of transalpine Renaissance, 130.
Vitruvius, 85; quoted on the orders, 86; taken by Palladio as his master, 96, 97; later Renaissance architects based their practice on the writings of, 119; cited on meaningless Roman ornamental designs, 170[1]; notion that the Ionic order was designed after female proportions, derived from, 207[1].

Walpole, Horace, *Anecdotes of Painting*, 226; quoted on Inigo Jones, 226, 229; quoted on faults of Jones's façade of old St. Paul's, London, 231, 232.
Ware, Isaac, *A Complete Body of Architecture*, 248[1], 249[1]; quoted on the rules of ancient architects, 248, 249.
Wenz, Paul, *Die Kuppel des Domes Santa Maria del Fiore zu Florence*, 20[1].
Willis, his term "continuous impost" used, 188[1].
Window openings, framed by structural members without structural meaning, 116; a peculiar form of compound, sometimes called an invention of Scamozzi, 134 (cut), 143; the same form occurs in the basilica of Shakka, 134 (cut); tapering jamb shafts, 137 (cut), 142, 149; illogical scheme of, which became characteristic of Lombard and Venetian Renaissance architecture, 148 (cut); mediæval form of those in Venetian palaces, 159 (cut), 160, 162; Lower Walterstone Hall, England, illustrates Elizabethan neo-classic ornamentation, 221 (cut); château of Azay le Rideau, France, Flamboyant Gothic and neo-classic forms combined, 186 (cut); château of Charleval, France, unmeaning variation of details, 210, 211 (cut); Palazzo Bartolini, Florence, 109 (cut); Palazzo Guardagni, Florence, 107; the Quaratesi, Florence, 106; the Riccardi, Florence, mediæval in their larger features, but with tapering jamb shafts, 103; Palazzo Rucellai, Florence, 109 (cut); Ospedale Maggiore, Milan, 165 (cut); of the Certosa of Pavia, tapering jamb shafts, 137 (cut); Palazzo Cancelleria, 112 (cut); of Palazzo Farnese, Rome,

framed by structural members without structural meaning, 116 (cut); Ducal Palace, Venice, east side of court, 154, north side, pseudo-Corinthian order of, 155 (cut); Palazzo Contarini, Venice, grouping of the pilasters, 161 (cut); Palazzo Corner-Spinelli, Venice, mediæval features, incomplete circle in the tympanum space, 160; Palazzo Corneri, Venice, 124 (cut); Palazzo Vendramini, Venice, grouping of, in the bays of the façade, 162; Scuola di San Rocco, Venice, with mediæval features and with pseudo-Corinthian colonnettes, 159 (cut); Palazzo Bevilacqua, Verona, 126, 127; Palazzo Branzo, Vicenza, a peculiar form of compound window, sometimes called an invention of Scamozzi, 134.

Wren, Sir Christopher, *Parentalia, or Memoir of the Family of the Wrens*, 232[8] ff.; professor of astronomy at Oxford, 233; quotations from a letter written during his visit to Paris, 233; quoted on his Sheldonian theatre, Oxford, 234; ordered to submit designs for the restoration of old St. Paul's cathedral, London, 234; his drawings of plans for the new structure, 235–238 (cuts); building of the present structure, 239–245 (cuts); his scheme to "reconcile the Gothic to a better manner," 238, 243, 245; he learned his art on the scaffold in close contact with the works, 239: his churches other than St. Paul's, exhibit a medley of elements from spurious Gothic to pseudo-classic in irrational combinations, 245, 246; his spires are hybrid compositions of barbaric character, 246.

Development and Character of Gothic Architecture

By CHARLES HERBERT MOORE

Second Edition, Rewritten and Enlarged. With Ten Plates in Photogravure and more than 200 Illustrations in the Text

8vo. Cloth. $4.50, net

The new edition embodies a large amount of fresh material gathered at first hand from the monuments. A considerable number of early Gothic buildings of great importance, hitherto little known, have been examined; and much new light has thus been thrown upon the interesting subject of the early Gothic development. A new chapter on the sources of Gothic art has been inserted; the other chapters have been rewritten and much new matter incorporated. The work is thus much improved both as an exposition of the nature and character of Gothic art, and a comparative illustration of the various pointed systems of the Middle Ages.

Many new illustrations in the text, and a considerable number of full-page plates, executed in the best manner of photographic reproduction, will be included.

THE NATION *says of the new edition:*

"The treatise has evidently been remade from beginning to end, the old material being retained only so far as it was found to meet entirely the new demands.

"As to the illustrations, they also have been minutely reconsidered, and the improvement in this respect is even more striking than in the text. . . .

"Those who have found the first edition of Mr. Moore's work valuable will find it still more important to possess the second."

"We welcome Mr. Moore's book with unalloyed satisfaction . . . as of very great importance and value. . . . A book so comprehensive, so compact, so clear in statement, and so interesting in the treatment of its great subject is well suited not only to increase the general knowledge of Gothic architecture, but to become a text-book for special students." — AMERICAN ARCHITECT AND BUILDING NEWS.

"It is without question the most noteworthy work upon architecture yet written in America, as well as by one of the foremost contributors to the literature of the subject which has appeared in any country. . . .

"Mr. Moore's book is an honor to American scholarship and investigation, and deserves the widest circulation among readers who possess any interest in what he succeeds in making a most interesting subject." — BOSTON DAILY ADVERTISER.

"While the more appreciative readers of this volume will be found among students of architecture, no reader of taste or culture will find its pages without interest."
— THE TRANSCRIPT, BOSTON.

"A very intelligent and sufficiently lucid discussion of fundamental principles . . . distinguished by a clear, logical precision of statement, and by a boldness, and not unfrequently by an originality of deduction, such as cannot be found in the works of European scholars . . . lucid enough to commend themselves even to readers unfamiliar with the technical side of the subject. To such readers, also, the orderly development of the argument, the frequent, graphic illustrations, . . . and above all, the exhaustive index, cannot fail to serve at once as an invitation to enter upon a charming field of study, and an inducement to stay until the last words are said."
— THE ATLANTIC MONTHLY.

THE MACMILLAN COMPANY

64–66 Fifth Avenue, New York

European Architecture

A HISTORICAL STUDY

BY

RUSSELL STURGIS, A.M., Ph.D., F.A.I.A.

President of the Fine Arts Federation of New York; Post-President of the Architectural League of New York; Vice-President of the National Sculpture Society; etc.

8vo. Illustrated. $4.00

OUTLOOK

"To the literature of architecture no American is better qualified to make a contribution of lasting value than Mr. Russell Sturgis."

THE ARCHITECTS' AND BUILDERS' REVIEW

"Mr. Sturgis tells his readers exactly what the purpose of his book is, and raises no expectations that are not fully realized. . . . It cannot be too widely known or too carefully studied. . . . Nothing Mr. Sturgis can say on the subject of architecture can fail to be interesting and instructive. . . . It is not too much to say that this single work forms the best introduction to the serious study of European architecture ever published."

THE INDEPENDENT

"In Mr. Sturgis's 'European Architecture' rare good taste, simple truth, and great knowledge combine to satisfy eye and mind."

THE MACMILLAN COMPANY

64–66 Fifth Avenue, New York

A DICTIONARY OF ARCHITECTURE AND BUILDING

Biographical, Historical, and Descriptive

By RUSSELL STURGIS, A.M., Ph.D.

Fellow of the American Institute of Architects

And many Architects, Painters, Engineers, and other expert Writers, American and Foreign

IN THREE OCTAVO VOLUMES — SOLD ONLY BY SUBSCRIPTION

Cloth, $18.00 net per set Half morocco, $30.00 net per set

COMMENTS OF THE PRESS

"Ambitious in scope and ample in bulk, the present work bids for wide acceptance among the general as well as the technical public. It is practically the only considerable effort to supply encroaching demands for a compendium which shall be at once convenient as to form and complete in the matter of contents. The aim of its compilers has evidently been to strike an average between that which is popular and that which is for the specialist, and in this they have shown sagacity. Edited under the direct supervision of Mr. Russell Sturgis, — who has contributed a momentous proportion of the material, — the work has enlisted the services of some sixty current authorities." — CRITIC.

"Mr. Russell Sturgis is the editor of this important work, and has had the coöperation of such men as Dr. Cleveland Abbe, Edward Atkinson, E. H. Blashfield, Henry Van Brunt, . . . and others, each of them eminent in some department of knowledge rendering his aid valuable. It is somewhat remarkable that there is in English no other dictionary of architecture, excepting a work in eight volumes said to have been begun about 1850 and to have been completed only ten years ago. There is room, therefore, for a modern, scholarly, and reasonably complete work of this class.

"The present volume, the first of the three proposed, covers the letters A to E, inclusive. It is comprehensive, concise, although sufficiently full, untechnical, and easily used. The desirable line between too scrupulous terseness and too much elaboration of definition or description has been drawn ordinarily with great success. There is no hesitation to give space for desirable comment, as in what is written under 'Builder,' for instance, but brevity has been kept in view throughout the work, and its cross-references facilitate its use. The titles are in heavy type and at once catch the eye. Illustrations, numerous and appropriate, some of full-page size, abound, and all in all the work will meet very satisfactorily a real and important public need." — CONGREGATIONALIST.

"Thanks to Mr. Russell Sturgis and a corps of competent assistants, we now have in 'A Dictionary of Architecture and Building: Biographical, Historical, and Descriptive' a much more valuable work than could have been hoped for. . . . Several things are at once noticeable about this work — the terseness and lucidity of its articles and definitions; the extraordinary range of its subjects, from the arch of Septimius Severus to modern apartment houses and tenements, and from St. Paul's, London, and the Doge's palace in Venice, to a crib for hay such as one finds in rural England, and a peasant's hut in Asia Minor; the beauty of the illustrations, and particularly the readiness with which they elucidate the accompanying definitions and accounts; and the elaborate system of cross-references, through which a glance at an article on any phase of a given subject points the way at once to accounts of other related terms and their uses.

"Perhaps the thoroughly modern spirit which dominates and inspires the whole work is the feature that distinguishes this book most strongly from the works in other languages which the seeker for definitions hitherto has perforce consulted. The writers of these articles are scholarly men, but they are something more than scholars. They are not living in the past; they are doing their work in the world to-day, and their point of view and their tone is a most satisfactory and practical mixture of culture with the recognition of the needs of the average American. An important feature of this work will be the series of articles on the typical architecture of different countries. Some of those in the present volume deal with the architectures of Australia, Denmark, and England, while, to judge from cross-references, the one in the final volume on the architecture of the United States will be ambitious, elaborate, and inclusive. The connection of this work with modern building is shown by the two long articles on the 'Apartment House' and 'Electrical Appliances.' Modern edifices are as seriously considered as the ancient monuments described and pictured by Viollet-le-Duc. . . . Now that it has appeared, this dictionary, many of whose articles extend to the dimensions of those in encyclopædias, becomes indispensable in its field." — BOSTON HERALD.

THE MACMILLAN COMPANY, 64–66 Fifth Avenue, New York

00063737

Digitized with financial assistance from
Observer Research Foundation
on 17 May, 2019